

**SITE REASSESSMENT  
(SR) REPORT**

**for**

**Windham Alloys  
Windham, Portage County, Ohio  
U.S. EPA ID: OHSFN0507820  
Ohio EPA DERR ID: 267-1943  
Ohio EPA Work Activity No. 267001943006**

**OHIO ENVIRONMENTAL PROTECTION AGENCY  
Division of Emergency & Remedial Response  
Lazarus Government Center  
122 South Front Street  
Columbus, Ohio 43216**

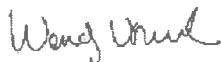
**June, 2011**

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**U.S. EPA ID: OHSFN0507820  
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June, 2011**

Prepared by:



Date: 7-20-11

Wendy Vorwerk  
Site Investigation Field Unit  
Division of Emergency & Remedial Response  
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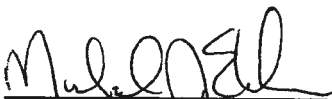
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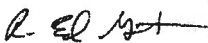
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Date: 7-20-11

Michael Eberle  
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## **1.0 EXECUTIVE SUMMARY**

The Ohio Environmental Protection Agency (OEPA) Division of Emergency and Remedial Response (DERR) entered into a cooperative agreement with the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Site Reassessment (SR) of Windham Alloys, Portage County, Ohio. The purpose of this SR is to enhance and fill data gaps from the previous Site Inspection (SI), Expanded Site Inspection (ESI), and Supplemental ESI investigations. This information will identify whether the wastes migrated into the ground water and nearby public drinking water supply wells. The data collected will be used to demonstrate whether or not the Site is of National Priority List (NPL) caliber by documenting observed releases, observed contamination, and potential targets.

The Workplan for this SR was approved by U.S. EPA on October 14, 2010. The ground water sampling was conducted on November 15th through November 16th, 2010. A total of 8 samples including duplicates and backgrounds were collected both on- and off-site. The samples were analyzed through the U.S EPA Contract Laboratory Program (CLP) for the Target Analyte List (TAL) metals and cyanide.

## **2.0 SITE BACKGROUND**

### **2.1 Site Description**

The Windham Alloys site (Site) is located along State Route 303, just west of the Village of Windham, Portage County, Ohio. The land use surrounding the Site is residential and agricultural. The Site is rectangular and approximately 20 acres in size (see **Figure 1**). The south end of the Site runs along State Route 303, where a complex of five substantial buildings is located (see **Figure 2**). This area is approximately five acres in size and is entirely concrete, with a large scale for weighing trucks in the middle of the complex.

Behind the building complex to the north is a vegetative area where drum and container dumping took place. A Time Critical removal was conducted by U.S. EPA in the estimated two-acre dump area in the year 2000. Located along side the dump area are two unnamed ditches. These ditches merge north of the dump area and flow north into an unnamed pond. Another ditch is located on the east side of the building. The land between the dump area and the pond is a marshy, wetland-type area. Land to the east and west of the Site is flat and is partially wooded with open fields.

The Village of Windham's drinking water well field of concern is located approximately 400 feet east of the dump area. The Village has six wells placed approximately 500 feet apart heading from S.R. 303 to the north (see **Figure 1**). The Site is included in a drinking water source protection area (see **Figure 4**).

Currently, there is one resident living on-site, but this resident does not consume the water from the former on-site drinking water well. The water is, however, used for cleaning, bathing, and other non-potable uses. The vacant southeast building contains the other well which was formally used for production and drinking water. The other buildings on-site contain no wells are not being used at this time.

### **2.2 Site History**

In 1995, the Ohio EPA received anonymous complaints of illegal waste handling activities being conducted at the Site. At that time, a lead smelting company, Extrusions and Alloys (EA), was operating on the property. EA was owned by Doug Mickey who leased the property from Tony Rubino, the site owner. Mr. Mickey previously owned Master Metals, another lead smelting business in Cleveland, Ohio. The EA facility was inspected in 1996 and no substantial evidence of dumping was observed.

Doug Mickey died in 1997. After his death, Mr. Rubino took over the smelting

business and changed the name to Windham Alloys. In response to continued reports of illegal dumping at the Site, Ohio EPA's Special Investigations Unit, Ohio AGO's Bureau of Criminal Identification and Investigation (BCI) and U.S. EPA's Criminal Investigation Division (CID) began another investigation. The waste products that were suspected of being dumped included lead dross, a byproduct of lead smelting, and chromic acid.

On November 24, 1998, a criminal search warrant was executed at Windham Alloys. The investigation included exploratory test trench excavations in which over 100 five-gallon containers and a few 55-gallon drums were found. Ohio EPA collected 21 samples from the contents of the buried wastes. The majority of the samples were analyzed and determined to be hazardous for Toxic Characteristic Leaching Procedure (TCLP) lead and chromium. The excavated waste was removed and disposed of properly by Ohio EPA's contractor.

On December 15, 1998, Ohio EPA ordered Mr. Rubino to remove the remaining buried waste and clean up any contaminated soils. Mr. Rubino ignored the order. Ohio EPA then requested U.S. EPA's assistance in cleaning up the Site as a Time Critical Removal. After negotiating with Mr. Rubino for several months, U.S. EPA obtained a search warrant for the removal. A removal was conducted that lasted approximately 3 months, from March 13 to June 29, 2000. U.S. EPA removed over 3,000 tons of contaminated soil and 20 cubic yards of contaminated debris (see **Figures 2 & 3**). The soils and debris were treated on-site then shipped off-site as non-hazardous to a licensed sanitary landfill. Additionally, 12,870 gallons of flammable liquid was shipped off-site for fuels blending. U.S. EPA also had 317,102 gallons of contaminated liquids pumped from the Site to prevent the migration of surface water into other streams or the ground water. Prior to leaving the Site, U.S. EPA restored the soils and graded and seeded the affected areas.

In 2001/2002 the Ohio EPA conducted a federal Site Inspection which included soil, sediment, and surface water sampling. High levels of lead and chromium were found in many of the on-site surface soils, as well as sediment samples from the drainage ditches.

In 2003, the Ohio EPA conducted an ESI to evaluate the ground water pathway and the possible migration of contaminants to the nearby municipal wells. Two on-site monitoring wells were installed, and two existing wells were located. One of the existing wells was formally a drinking water source for the on-site residents, but currently is not being used for consumption. All the wells are approximately 50-60 feet deep. The results indicated that the contaminants are not migrating into the ground water and are restricted by approximately 40 feet of low permeable clay.

In 2006, the Ohio EPA conducted a Supplemental Expanded Site Inspection to further evaluate the extent of soil, sediment, ground water, and surface water impacted by past contamination. The soil, sediment, ground water, and surface

water sampling was conducted on July 17 through July 20th. A total of 43 samples including duplicates and backgrounds were collected both on- and off-site. The samples were screened on-site using x-ray fluorescence (XRF) and analyzed through the U.S EPA Contract Laboratory Program (CLP) for the Target Analyte List (TAL) metals and cyanide. The main concern at the Site is direct contact exposure to lead contaminated soil and sediment, the sporadic lead contamination of Windham's nearby wellfield, and ecological impact due to lead contaminated soil, sediment, and surface water. Elevated levels of lead, chromium, copper, and mercury were found in surface and subsurface soils; lead in sediments; lead, zinc, copper, and arsenic in surface water; and lead and copper in ground water.

### **2.3 Site Geology & Hydrology**

Portage County was completely covered by continental glaciers during the Wisconsin and Illinoian ages and probably during previous glacial periods. During the most recent, the Wisconsin glacial period, parts of Portage County were covered by two coincident glacier lobes. The Killbuck Lobe occurred in the northern half of the western tier of the townships, and the Grand River Lobe covered most of the rest of the county. These lobes did not meet, but they advanced and retreated repeatedly. The area between the two lobes is called the interlobate zone. It begins in central Geauga County, extends through the western third of Portage County, and continues southwestward through Summit County and into Stark County. This interlobate area consists of sand and gravel and interbedded layers of till.

The first advance of the Wisconsin Glacier deposited glacial till that was relatively low in clay content. Wooster and Canfield soils formed in this till. The less extensive second major advance deposited till having relatively more clay than the first deposits. The Rittman and Wadsworth soils formed in this till. The third advance, less extensive than the others, deposited till with a high content of clay. The Mahoning and Ellsworth soils formed in this till. In Portage County, only the Grand River Lobe had a fourth advance, which deposited a clayey till that had very high clay content. The Remsen and Geeburg soils formed in that clay till.

The rock hills in the northern part of the county have a northwest-southeast orientation that parallels the movements of the glacial lobes. Sandstone outcrops in some of the steeper area where there is no till cover. Numerous valleys are buried under the glacial drift in Portage County. During or before the Illinoian glacial advance, the ice deepened the valleys and smoothed the valley walls; then the advancing Wisconsin Glacier filled these valleys with gravel, sand, silt, and clay. Valleys were filled with silt and clay if outlets were blocked by the glacier; open valleys were filled mainly with sand and gravel.

The bedrock underlying the glacial deposits and outcropping in places is a member of the Pottsville Formation of the Pennsylvanian System. It is mainly

acid sandstone and shale. The regional dip of the bedrock strata averages 5 to 10 feet per mile toward the south.

Ground water is obtained from sandstones of the Pottsville group. The principal aquifers are the Massillon sandstone and the Sharon conglomerate. Wells in the area will produce sustained yields of as much as 50 gallons per minute. Greater yields, 100 or more gallons per minute, may be available for short periods of intermittent pumping. Generally, the bedrock is covered with less than 75 feet of glacial material.

The Village of Windham's water system was installed and put into operation in September 1943 and currently serves an approximate population of 3,150 individuals (See Figure 1). The system originally consisted of eight wells, numbered 3 through 10, located along the east side of the west corporation line and north of Center Street (State Route 303) and spaced at 500 foot intervals. Since installation, wells PS-6 and PS-7 have been abandoned due to the construction of the Ohio Turnpike. Well PS-4 was abandoned and re-drilled in close proximity to its original location. Three wells (PS-3, PS-4, & PS-5) are located just east of the Site. The remaining wells (PS-8, PS-9 & PS-10) are located north of the turnpike, approximately 1500-2000 feet north of the Site's northern boundary. Records show that the remaining six wells are placed within the sandstone bedrock at depths ranging from 72 to 95 feet below ground. The upper surface of the sandstone at the Site was encountered at approximately 40 feet below ground. Wells PS-9 and PS-10 were chosen as background wells for this Site Reassessment, because the water collected would be from the same aquifer and not impacted by any site contaminants (see **Figure 4**).

### 3.0 SAMPLING LOCATIONS & DISCUSSION OF RESULTS

Ground water samples were collected both on- and off-site during this SR. The sample locations can be found on the Sample Location Map on **Figure 3**. The two background well locations can be found on **Figure 1**. Standard Quality Assurance and Quality Control (QA/QC) procedures for Site Reassessment field activities were followed during the investigation. These procedures are documented in the Quality Assurance Project Plan (QAPP) for Region 5 Superfund Site Inspection activities for Ohio EPA and Ohio EPA Field Standard Operating Procedures.

A total of 8 samples, including backgrounds and duplicates, were sent for analyses to U.S. EPA Contract Laboratory Program (CLP) laboratories. Analysis included only the contaminants of concern which are Target Analyte List (TAL) metals and cyanide. The sample results are reported in the units of either micrograms per liter (ug/L) which is equivalent to parts per billion (ppb). The CLP data were reviewed by U.S.EPA Region 5 for compliance with the Contract Laboratory Program, and validated by the Computer-Aided Data Review and Evaluation (CADRE) software package. The complete analytical results of this investigation are contained in **Appendix A**.

Significant findings based on these data are summarized in Table 1. Under the Hazard Ranking System Rule, results are considered significant if they are at least three times the background sample result and above the Contract Required Quantitation Limit (CRQL). The CRQLs can be found in **Appendix B**. A site photographic log can be found in **Appendix C**.

#### 3.1 Ground Water Samples

Eight ground water samples were collected during this investigation. One on-site monitoring well and one on-site existing well were sampled along with four Village of Windham production wells used for public water supply.

Significant ground water sample results can be found in **Table 1** below. All the results above the CRQL are presented. However, note that PS-9 and PS-10 were the background samples collected and no results exceeded three times background.

Of moderate concern is that lead and arsenic were detected in nearly all the wells, including background. The highest lead was detected at 38.9 µg/L in background well PS-10, and the Treatment Technique (TT) for lead under the MCLs is 15 µg/L. The highest level of arsenic was detected at 14.3 µg/L in well PS-3, and the MCL of arsenic is 10 µg/L. Background for arsenic was 6.3 µg/L, because arsenic was the only detection in one well (PS-10). Although some of these wells are used as drinking water supply wells, the public water is treated prior to consumption.

**Table 1: Ground Water Sample Results Above the CRQL**

Sample Number	ME2692		ME2693		ME2694		ME2695		ME2696	
Sample Location	PS-3		PS-4		PS-9		PS10		EW-1	
Sample Description	Near Site		Near Site		Background		Background		Onsite - Existing	
Matrix	Water		Water		Water		Water		Water	
Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled	11/15/10		11/15/10		11/15/10		11/15/10		11/16/10	
Dilution Factor	1		1		1		1		1	
Analyte	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM					250					
ARSENIC	14.3								12.0	
BARIUM					223					
CALCIUM	78800		102000		148000		135000		82800	
IRON	2290		4810		11500		12200		2400	
LEAD	35.1	J+	36.3	J+	36.9	J+	38.9	J+	34.1	J+
MAGNESIUM	20800	J	26200	J	33300	J	31300	J	20100	J
MANGANESE	225		315		629		680		241	
SODIUM	14300	J	47500	J	222000	J	50000	J	10600	J

Sample Number	ME2697		ME2698		ME2699		Maximum Contaminant Levels (MCLs) OR Treatment Technique*	CRQL
Sample Location	MW-1		MW-2		MW-3			
Sample Description	Onsite Monitoring		Offsite Monitoring		Duplicate of MW-1			
Matrix	Water		Water		Water			
Units	ug/L		ug/L		ug/L			
Date Sampled	11/16/10		11/15/10		11/16/10			
Dilution Factor	1		1		1			
Analyte	Result	Flag	Result	Flag	Result	Flag		
ALUMINUM							N/A	200
ARSENIC	12.5				10.9		10	10
BARIUM							2000	200
CALCIUM	78500		104000		85600		N/A	5000
IRON	2290		104		2450		N/A	100
LEAD	33.5	J+	38.7	J+	34.3	J+	15*	10
MAGNESIUM	20600	J	27000	J	21800	J	N/A	5000
MANGANESE	229		497		233		N/A	15
SODIUM	17900	J	48000	J	21100	J	N/A	5000

## **4.0 MIGRATION PATHWAYS**

### **4.1 Groundwater Pathway**

The ground water pathway is the primary migration pathway of concern for this project. The Village of Windham supplies an approximate population of 3,150 individuals from a series of six wells in the Village well field. The well field is located adjacent to the Site to the east and north. Three of these wells (PS-3, PS-4, & PS-5) are located along the property boundary of the Site, with well PS-4 approximately 250 feet from the former removal area. The remaining three wells (PS-8, PS-9, & PS-10) are located north of the Ohio Turnpike, approximately 1500-2000 feet north of the Site's northern boundary. Two wells, PS-4 and PS-10 are the primary production wells, and Well PS-3 is used as back-up. The remainder of these wells (PS-5, PS-8, and PS-9) are dormant, but are exercised in case of emergency. The Site itself lies within the Village Well Head Protection Area; indicating that ground water likely flows east toward Production Well #4.

Existing within a 4-mile radius of the Site are two additional public community water supply systems. These two systems are approximately 2.03 and 2.87 miles northwest of the Site and serves 600 and 92 people respectively. This information can be found on the Geographic Information Systems (GIS) public water supply database and maps in Appendix E.

During the 2003 ESI and the 2006 Supplemental ESI many of these wells sampled for this event were also sampled. Sporadic results indicated elevated lead levels in many of these wells. Re-sampling occurred which showed lead levels were below the MCL Treatment Technique. The results of this sampling event showed elevated concentration of lead in all the wells, including the two background wells. This evidence suggests that the aquifer may contain some natural occurring inorganic chemicals, including lead and arsenic.

### **4.5 Summary**

From the ground water data collected during this investigation, it appears that lead and arsenic is a natural occurrence, based on a comparison of the results from the background wells. The Windham Water Department will receive a copy of this final report and may choose to resample the wells and/or evaluated their capabilities for treatment.

## **5.0 REFERENCES**



1. United States Department of Agriculture, Soil Conservation Service, "Soil Survey of Portage County," 1978.
2. Ohio Department of Natural Resources, Division of Water, "Ground Water Resources of Portage County," 1979.
3. Ohio EPA, "Quality Assurance Project Plan for Superfund Site Investigation Activities conducted by Ohio EPA," May 14, 1998.
4. Ohio EPA, "Site Inspection Report, Windham Alloy Metal Company," January 2, 2002.
5. Ohio EPA, "Expanded Site Inspection Report, Windham Alloy Metal Company," September 25, 2003.
6. Ohio EPA, "Supplemental Expanded Site Investigation, Windham Alloy Metal Company," March 30, 2007.

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## **Appendix A**

### **Complete Analytical Results Contract Laboratory Data**

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# ESATS. 215. 00139

*ACH*  
*1-18-11*

**Regional Transmittal Form**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION V**

**DATE:** 1/5/2011

**SUBJECT:** **Review of Data**  
**Received for review on** 12/2/2010

**FROM:** **Timothy Prendiville, Supervisor, Chief (SRT-6J)**  
**Superfund Contract Management Section**

**TO:** **Data User:** OEPA

**LEVEL 3 DATA VALIDATION**

**We have reviewed the data for the following case:**

**SITE NAME:** Windham Alloys (OH)

**CASE NUMBER:** 40778 **SDG NUMBER:** ME2692

**Number and Type of Samples:** 8 waters

**Sample Numbers:** ME2692-ME2699

**Laboratory:** Sentinel **Hrs. for Review:** 6.5

*41.0 DEC*

**Following are our findings:**

CC: Howard Pham  
Region 5 TPO  
Mail Code: SA-5J

Feb. 10. Dec. 20, 1903

1903

1903

**Below is a summary of the out-of-control audits and the possible effects on the data for this case:**

Eight (8) water samples, numbered ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699, were collected November 15-16, 2010. The lab received the samples on November 18, 2010 in good condition. All samples were analyzed for metals and cyanide. All samples were analyzed using the CLP SOW ISM01.2 analysis procedures.

Mercury analysis was performed using a Cold Vapor AA Technique. Cyanide analysis was performed using the MIDI Distillation procedure. The remaining inorganic analyses were performed using an Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) procedure.

EXES flagged samples J-/R for improper preservation except for cyanide. In EXES, the pH entered was 1 for all analytes, which is acceptable. The flags for improper preservation have been removed from this reviewers report.

**1. HOLDING TIME:**

No defects were found.

**2. CALIBRATIONS:**

No defects were found for the calibration standards.

**3. BLANKS:**

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL). The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.

Hits greater than the CRQL but less than 5 times the blank are qualified "J+".

Aluminum

ME2693, ME2697, ME2698

Barium

ME2692, ME2693, ME2695, ME2696, ME2697, ME2698, ME2699

Beryllium

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

Lead

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

Mercury

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

Potassium

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

Selenium

ME2694

Thallium

ME2698, ME2699

Cyanide

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL) and with a negative ICB/CCB or preparation blank whose absolute value is greater than the MDL. The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.  
Hits greater than the CRQL but less than 5 times the blank are qualified "J".

**Aluminum**

ME2692, ME2695, ME2696, ME2699

No samples were identified as field blanks.

**4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:**

No defects were found for matrix spike or laboratory control samples.

**5. LABORATORY AND FIELD DUPLICATE:**

No defects were found for the laboratory duplicate samples. No samples were identified as field duplicates.

**6. ICP ANALYSIS:**

The following inorganic samples are associated with an ICP serial dilution percent difference which is not in control.

Hits are qualified "J" and non-detects are qualified "UJ".

**Magnesium**

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

**Sodium**

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

No defects were found for the ICS samples.

**7. SAMPLE RESULTS:**

The following inorganic samples have analyte concentrations reported above the method detection limit (MDL) but below the quantitation limit (CRQL).

Results are qualified "J".

**Antimony**

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

**Arsenic**

ME2693, ME2695

**Chromium**

ME2696, ME2697, ME2698, ME2699

**Cobalt**

ME2699

**Copper**

ME2692, ME2693, ME2694, ME2695, ME2696, ME2697, ME2698, ME2699

**Nickel**

ME2697, ME2699

**Zinc**

ME2692, ME2693, ME2694, ME2695, ME2699

All data, except those qualified above, are acceptable.



**EXES ISM01.2 Data Qualifier Sheet**

<u>Qualifiers</u>	<u>Data Qualifier Definitions</u>
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

**Analytical Results (Qualified Data)**

Page 1 of 2

Case #:40778 SDG: ME2692  
 Site: WINDHAM ALLOYS  
 Lab.: SENTIN  
 Reviewer: L. DAVIS  
 Date: 1/5/2011

Number of Soil Samples: 0  
 Number of Water Samples: 8  
 Number of Wipe Samples: 0  
 Number of Filter Samples: 0

Sample Number:	ME2692		ME2693		ME2694		ME2695		ME2696	
Sampling Location:	PS-3		PS-4		PS-9		PS-10		EW-1	
Matrix:	Water		Water		Water		Water		Water	
Units:	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled:	11/15/2010		11/15/2010		11/15/2010		11/15/2010		11/16/2010	
Time Sampled:	12:30:00		12:40:00		13:15:00		13:30:00		15:00:00	
%Solids:	0.0		0.0		0.0		0.0		0.0	
Dilution Factor:	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200	U	200	U	250		200	U	200	U
ANTIMONY	1.3	J	2.4	J	2.7	J	2.1	J	1.6	J
ARSENIC	14.3		9.0	J	10.0	U	6.3	J	12.0	
BARIUM	200	U	200	U	223		200	U	200	U
BERYLLIUM	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
CADMIUM	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
CALCIUM	78800		102000		148000		135000		82800	
CHROMIUM	10.0	U	10.0	U	10.0	U	10.0	U	0.72	J
COBALT	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
COPPER	20.9	J	3.8	J	10.4	J	7.3	J	4.2	J
IRON	2290		4810		11500		12200		2400	
LEAD	35.1	J+	36.3	J+	36.9	J+	38.9	J+	34.1	J+
MAGNESIUM	20800	J	26200	J	33300	J	31300	J	20100	J
MANGANESE	225		315		629		680		241	
MERCURY	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
NICKEL	40.0	U	40.0	U	40.0	U	40.0	U	40.0	U
POTASSIUM	5000	U	5000	U	5000	U	5000	U	5000	U
SELENIUM	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U
SILVER	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
SODIUM	14300	J	47500	J	222000	J	50000	J	10600	J
THALLIUM	25.0	U	25.0	U	25.0	U	25.0	U	25.0	U
VANADIUM	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
ZINC	20.4	J	1.8	J	15.5	J	8.0	J	60.0	U
CYANIDE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U

# Analytical Results (Qualified Data)

Page 2 of 2

Case #:40778 SDG: ME2692

Site: WINDHAM ALLOYS

Lab.: SENTIN

Reviewer: L. DAVIS

Date: 1/5/2011

Sample Number:	ME2697	ME2698	ME2699							
Sampling Location:	MW-1	MW-2	MW-3							
Matrix:	Water	Water	Water							
Units:	ug/L	ug/L	ug/L							
Date Sampled:	11/16/2010	11/15/2010	11/16/2010							
Time Sampled:	11:45:00	16:30:00	12:00:00							
%Solids:	0.0	0.0	0.0							
Dilution Factor:	1.0	1.0	1.0							
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200	U	200	U	200	U				
ANTIMONY	1.9	J	2.0	J	2.5	J				
ARSENIC	12.5		10.0	U	10.9					
BARIUM	200	U	200	U	200	U				
BERYLLIUM	5.0	U	5.0	U	5.0	U				
CADMIUM	5.0	U	5.0	U	5.0	U				
CALCIUM	78500		104000		85600					
CHROMIUM	0.83	J	0.90	J	0.83	J				
COBALT	50.0	U	50.0	U	1.1	J				
COPPER	3.3	J	3.9	J	3.4	J				
IRON	2290		104		2450					
LEAD	33.5	J+	38.7	J+	34.3	J+				
MAGNESIUM	20600	J	27000	J	21800	J				
MANGANESE	229		497		233					
MERCURY	0.20	U	0.20	U	0.20	U				
NICKEL	1.6	J	40.0	U	3.8	J				
POTASSIUM	5000	U	5000	U	5000	U				
SELENIUM	35.0	U	35.0	U	35.0	U				
SILVER	10.0	U	10.0	U	10.0	U				
SODIUM	17900	J	48000	J	21100	J				
THALLIUM	25.0	U	25.0	U	25.0	U				
VANADIUM	50.0	U	50.0	U	50.0	U				
ZINC	60.0	U	60.0	U	1.5	J				
CYANIDE	10.0	U	10.0	U	10.0	U				

## Sample Summary Report

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	LCS	Method:	ICP_AES	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum			1.0			Yes	
Antimony			1.0			Yes	
Arsenic			1.0			Yes	
Barium			1.0			Yes	
Beryllium			1.0			Yes	
Cadmium			1.0			Yes	
Calcium			1.0			Yes	
Chromium			1.0			Yes	
Cobalt			1.0			Yes	
Copper			1.0			Yes	
Iron			1.0			Yes	
Lead			1.0			Yes	
Magnesium			1.0			Yes	
Manganese			1.0			Yes	
Nickel			1.0			Yes	
Potassium			1.0			Yes	
Selenium			1.0			Yes	
Silver			1.0			Yes	
Sodium			1.0			Yes	
Thallium			1.0			Yes	
Vanadium			1.0			Yes	
Zinc			1.0			Yes	

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2692	Method:	ICP_AES	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	PS-3	pH:	13.0	Sample Date:	11152010	Sample Time:	12:30:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	200	ug/L	1.0	J	U	Yes	S2BVE
Antimony	1.3	ug/L	1.0	J	J	Yes	S2BVE
Arsenic	14.3	ug/L	1.0			Yes	S2BVE
Barium	200	ug/L	1.0	J	U	Yes	S2BVE
Beryllium	5.0	ug/L	1.0	J	U	Yes	S2BVE
Cadmium	5.0	ug/L	1.0	U	U	Yes	S2BVE
Calcium	78800	ug/L	1.0			Yes	S2BVE
Chromium	10.0	ug/L	1.0	U	U	Yes	S2BVE
Cobalt	50.0	ug/L	1.0	U	U	Yes	S2BVE
Copper	20.9	ug/L	1.0	J	J	Yes	S2BVE
Iron	2290	ug/L	1.0			Yes	S2BVE
Lead	35.1	ug/L	1.0		J+	Yes	S2BVE
Magnesium	20800	ug/L	1.0		J	Yes	S2BVE
Manganese	225	ug/L	1.0			Yes	S2BVE
Nickel	40.0	ug/L	1.0	U	U	Yes	S2BVE
Potassium	5000	ug/L	1.0	J	U	Yes	S2BVE
Selenium	35.0	ug/L	1.0	U	U	Yes	S2BVE
Silver	10.0	ug/L	1.0	U	U	Yes	S2BVE
Sodium	14300	ug/L	1.0		J	Yes	S2BVE
Thallium	25.0	ug/L	1.0	U	U	Yes	S2BVE
Vanadium	50.0	ug/L	1.0	U	U	Yes	S2BVE
Zinc	20.4	ug/L	1.0	J	J	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2693	Method:	ICP_AES	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	PS-4	pH:	13.0	Sample Date:	11152010	Sample Time:	12:40:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	200	ug/L	1.0	J	U	Yes	S2BVE
Antimony	2.4	ug/L	1.0	J	J	Yes	S2BVE
Arsenic	9.0	ug/L	1.0	J	J	Yes	S2BVE
Barium	200	ug/L	1.0	J	U	Yes	S2BVE
Beryllium	5.0	ug/L	1.0	J	U	Yes	S2BVE
Cadmium	5.0	ug/L	1.0	U	U	Yes	S2BVE
Calcium	102000	ug/L	1.0			Yes	S2BVE
Chromium	10.0	ug/L	1.0	U	U	Yes	S2BVE
Cobalt	50.0	ug/L	1.0	U	U	Yes	S2BVE
Copper	3.8	ug/L	1.0	J	J	Yes	S2BVE
Iron	4810	ug/L	1.0			Yes	S2BVE
Lead	36.3	ug/L	1.0		J+	Yes	S2BVE
Magnesium	26200	ug/L	1.0		J	Yes	S2BVE
Manganese	315	ug/L	1.0			Yes	S2BVE
Nickel	40.0	ug/L	1.0	U	U	Yes	S2BVE
Potassium	5000	ug/L	1.0	J	U	Yes	S2BVE
Selenium	35.0	ug/L	1.0	U	U	Yes	S2BVE
Silver	10.0	ug/L	1.0	U	U	Yes	S2BVE
Sodium	47500	ug/L	2.0		J	Yes	S2BVE
Thallium	25.0	ug/L	1.0	U	U	Yes	S2BVE
Vanadium	50.0	ug/L	1.0	U	U	Yes	S2BVE
Zinc	1.8	ug/L	1.0	J	J	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2693	Method:	CN	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	PS-4	pH:	13.0	Sample Date:	11152010	Sample Time:	12:40:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Cyanide	10.0	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2694	Method:	CN	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	PS-9	pH:	13.0	Sample Date:	11152010	Sample Time:	13:15:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Cyanide	10.0	ug/L	1.0	J	U	Yes	S2BVE



Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2695	Method:	ICP_AES	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	PS-10	pH:	13.0	Sample Date:	11152010	Sample Time:	13:30:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	200	ug/L	1.0	J	U	Yes	S2BVE
Antimony	2.1	ug/L	1.0	J	J	Yes	S2BVE
Arsenic	6.3	ug/L	1.0	J	J	Yes	S2BVE
Barium	200	ug/L	1.0	J	U	Yes	S2BVE
Beryllium	5.0	ug/L	1.0	J	U	Yes	S2BVE
Cadmium	5.0	ug/L	1.0	U	U	Yes	S2BVE
Calcium	135000	ug/L	1.0			Yes	S2BVE
Chromium	10.0	ug/L	1.0	U	U	Yes	S2BVE
Cobalt	50.0	ug/L	1.0	U	U	Yes	S2BVE
Copper	7.3	ug/L	1.0	J	J	Yes	S2BVE
Iron	12200	ug/L	1.0			Yes	S2BVE
Lead	38.9	ug/L	1.0		J+	Yes	S2BVE
Magnesium	31300	ug/L	1.0		J	Yes	S2BVE
Manganese	680	ug/L	1.0			Yes	S2BVE
Nickel	40.0	ug/L	1.0	U	U	Yes	S2BVE
Potassium	5000	ug/L	1.0	J	U	Yes	S2BVE
Selenium	35.0	ug/L	1.0	U	U	Yes	S2BVE
Silver	10.0	ug/L	1.0	U	U	Yes	S2BVE
Sodium	50000	ug/L	2.0		J	Yes	S2BVE
Thallium	25.0	ug/L	1.0	U	U	Yes	S2BVE
Vanadium	50.0	ug/L	1.0	U	U	Yes	S2BVE
Zinc	8.0	ug/L	1.0	J	J	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2695	Method:	CN	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	PS-10	pH:	13.0	Sample Date:	11/15/2010	Sample Time:	13:30:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Cyanide	10.0	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2696	Method:	Hg	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	EW-1	pH:	13.0	Sample Date:	11162010	Sample Time:	15:00:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Mercury	0.20	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2697	Method:	ICP_AES	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	MW-1	pH:	13.0	Sample Date:	11162010	Sample Time:	11:45:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	200	ug/L	1.0	J	U	Yes	S2BVE
Antimony	1.9	ug/L	1.0	J	J	Yes	S2BVE
Arsenic	12.5	ug/L	1.0			Yes	S2BVE
Barium	200	ug/L	1.0	J	U	Yes	S2BVE
Beryllium	5.0	ug/L	1.0	J	U	Yes	S2BVE
Cadmium	5.0	ug/L	1.0	U	U	Yes	S2BVE
Calcium	78500	ug/L	1.0			Yes	S2BVE
Chromium	0.83	ug/L	1.0	J	J	Yes	S2BVE
Cobalt	50.0	ug/L	1.0	U	U	Yes	S2BVE
Copper	3.3	ug/L	1.0	J	J	Yes	S2BVE
Iron	2290	ug/L	1.0			Yes	S2BVE
Lead	33.5	ug/L	1.0		J+	Yes	S2BVE
Magnesium	20600	ug/L	1.0		J	Yes	S2BVE
Manganese	229	ug/L	1.0			Yes	S2BVE
Nickel	1.6	ug/L	1.0	J	J	Yes	S2BVE
Potassium	5000	ug/L	1.0	J	U	Yes	S2BVE
Selenium	35.0	ug/L	1.0	U	U	Yes	S2BVE
Silver	10.0	ug/L	1.0	U	U	Yes	S2BVE
Sodium	17900	ug/L	1.0		J	Yes	S2BVE
Thallium	25.0	ug/L	1.0	U	U	Yes	S2BVE
Vanadium	50.0	ug/L	1.0	U	U	Yes	S2BVE
Zinc	60.0	ug/L	1.0	U	U	Yes	S2BVE

Case No:	40778	Contract:	BPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2697	Method:	CN	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	MW-1	pH:	13.0	Sample Date:	11162010	Sample Time:	11:45:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Cyanide	10.0	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2697D	Method:	CN	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	13.0	Sample Date:	11162010	Sample Time:	11:45:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Cyanide	10.0	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2697D	Method:	Hg	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	13.0	Sample Date:	11162010	Sample Time:	11:45:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Mercury	0.20	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2697S	Method:	ICP_AES	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	13.0	Sample Date:	11162010	Sample Time:	11:45:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	2290	ug/L	1.0		J-	Yes	S2BVE
Antimony	90.3	ug/L	1.0		J-	Yes	S2BVE
Arsenic	54.4	ug/L	1.0		J-	Yes	S2BVE
Barium	2200	ug/L	1.0		J-	Yes	S2BVE
Beryllium	49.8	ug/L	1.0		J-	Yes	S2BVE
Cadmium	46.3	ug/L	1.0		J-	Yes	S2BVE
Chromium	203	ug/L	1.0		J-	Yes	S2BVE
Cobalt	526	ug/L	1.0		J-	Yes	S2BVE
Copper	253	ug/L	1.0		J-	Yes	S2BVE
Iron	3430	ug/L	1.0		J-	Yes	S2BVE
Lead	53.7	ug/L	1.0		J-	Yes	S2BVE
Manganese	759	ug/L	1.0		J-	Yes	S2BVE
Nickel	528	ug/L	1.0		J-	Yes	S2BVE
Selenium	47.8	ug/L	1.0		J-	Yes	S2BVE
Silver	49.6	ug/L	1.0		J-	Yes	S2BVE
Thallium	54.5	ug/L	1.0		J-	Yes	S2BVE
Vanadium	527	ug/L	1.0		J-	Yes	S2BVE
Zinc	506	ug/L	1.0		J-	Yes	S2BVE



Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2697S	Method:	Hg	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	13.0	Sample Date:	11162010	Sample Time:	11:45:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Mercury	0.99	ug/L	1.0		J-	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2698	Method:	Hg	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	MW-2	pH:	13.0	Sample Date:	11152010	Sample Time:	16:30:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Mercury	0.20	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2699	Method:	Hg	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	MW-3	pH:	13.0	Sample Date:	11162010	Sample Time:	12:00:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Mercury	0.20	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	ME2699	Method:	CN	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	MW-3	pH:	13.0	Sample Date:	11162010	Sample Time:	12:00:00
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Cyanide	10.0	ug/L	1.0	J	U	Yes	S2BVE

Case No:	40778	Contract:	EPW09040	SDG No:	ME2692	Lab Code:	SENTIN
Sample Number:	PBW	Method:	ICP_AES	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :	100		

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	200	ug/L	1.0	U	U	Yes	
Antimony	60.0	ug/L	1.0	U	U	Yes	
Arsenic	10.0	ug/L	1.0	U	U	Yes	
Barium	200	ug/L	1.0	J	U	Yes	
Beryllium	5.0	ug/L	1.0	J	U	Yes	
Cadmium	5.0	ug/L	1.0	U	U	Yes	
Calcium	5000	ug/L	1.0	U	U	Yes	
Chromium	10.0	ug/L	1.0	U	U	Yes	
Cobalt	50.0	ug/L	1.0	U	U	Yes	
Copper	25.0	ug/L	1.0	U	U	Yes	
Iron	26.8	ug/L	1.0	J	J	Yes	
Lead	10.0	ug/L	1.0	U	U	Yes	
Magnesium	5000	ug/L	1.0	U	U	Yes	
Manganese	15.0	ug/L	1.0	U	U	Yes	
Nickel	40.0	ug/L	1.0	U	U	Yes	
Potassium	5000	ug/L	1.0	J	U	Yes	
Selenium	2.7	ug/L	1.0	J	J	Yes	
Silver	10.0	ug/L	1.0	U	U	Yes	
Sodium	5000	ug/L	1.0	U	U	Yes	
Thallium	25.0	ug/L	1.0	U	U	Yes	
Vanadium	50.0	ug/L	1.0	U	U	Yes	
Zinc	60.0	ug/L	1.0	U	U	Yes	





USEPA Contract Laboratory Program  
Inorganic Traffic Report & Chain of Custody Record

Case No: 40778

DAS No:

SDG No: ME2692

L

Date Shipped: 11/17/2010  
Carrier Name: FedEx  
Airbill: 866389086611  
Shipped to: Sentinel Inc.  
4733 Commercial Drive  
Huntsville AL 35801  
(256) 534-9800

Chain of Custody Record		
Relinquished By	(Date / Time)	Sampler Signature
Wendy Vorwerk	11/10 1200	Wendy Vorwerk
2		
3		
4		

For Lab Use Only  
Lab Contract No: EPW09040  
Unit Price: \$130.30  
Transfer To:  
Lab Contract No:  
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	FOR LAB USE ONLY SAMPLE No. Sample Condition On Receipt
ME2692	Municipal Water Supply/ Wendy Vorwerk	L/G	CN (21), TM/Hg (21)	5C-001209 (HNO3), 5C-001210 (NaOH) (2)	PS-3	S: 11/15/2010 12:30	
ME2693	Municipal Water Supply/ Wendy Vorwerk	L/G	CN (21), TM/Hg (21)	5C-001211 (HNO3), 5C-001212 (NaOH) (2)	PS-4	S: 11/15/2010 12:40	
ME2694	Municipal Water Supply/ Wendy Vorwerk	L/G	CN (21), TM/Hg (21)	5C-001213 (HNO3), 5C-001214 (NaOH) (2)	PS-9	S: 11/15/2010 13:15	
ME2695	Municipal Water Supply/ Wendy Vorwerk	L/G	CN (21), TM/Hg (21)	5C-001215 (HNO3), 5C-001216 (NaOH) (2)	PS-10	S: 11/15/2010 13:30	
ME2696	Monitor Well/ Wendy Vorwerk	L/G	CN (21), DM (21), TM/Hg (21)	5C-001217 (HNO3), 5C-001218 (HNO3), 5C-001219 (NaOH) (3)	EW-1	S: 11/16/2010 15:00	
ME2697	Monitor Well/ Wendy Vorwerk	L/G	CN (21), DM (21), TM/Hg (21)	5C-001220 (HNO3), 5C-001222 (NaOH), 5C-001223 (HNO3), 5C-001224 (HNO3) (4)	MW-1	S: 11/16/2010 11:45	
ME2698	Monitor Well/ Wendy Vorwerk	L/G	CN (21), DM (21), TM/Hg (21)	5C-001225 (HNO3), 5C-001226 (HNO3), 5C-001227 (NaOH) (3)	MW-2	S: 11/15/2010 16:30	
ME2699	Monitor Well/ Wendy Vorwerk	L/G	CN (21), DM (21)	5C-001228 (HNO3), 5C-001229 (NaOH) (2)	MW-3	S: 11/16/2010 12:00	

Shipment for Case Complete?	Sample(s) to be used for laboratory QC: ME2697	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 2.9	Chain of Custody Seal Number: 111301-302
Analysis Key: CN = Cyanide, DM = CLP TAL Dissolved Metals, TM/Hg = CLP TAL Total Metals/Hg	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? <input checked="" type="checkbox"/>	Shipment Iced? <input checked="" type="checkbox"/>

IR Number: 5-482098907-111710-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.  
Send Copy to: Sample Management Office, 15000 Conference Center Dr., Chantilly, VA, 20151-3819 Phone 703/818-4200; Fax 703/818-4602

LABORATORY COPY

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc.

SOW No.: ISM01.2

Contract: EPW09040

Lab Code: SENTIN

Case No.: 40778

NRAS No.:

SDG No.: MEZ6092

**SAMPLE RECEIPT:** Temperature Blank: PRESENT ☒ ABSENT ☐

If a blank is absent, a non-invasive laser measurement it taken using a sample.

Cooler temperature(s) recorded via laser measurement were: 24°C

Refer to Record of Communication (ROC) regarding EPA Sample # discrepancies for samples:

None

Refer to ROC regarding tag discrepancies for samples:

None

Refer to ROC regarding sample preservation discrepancies for samples:

None

Refer to ROC regarding: None

QC Specified: Yes ☒ No ☐ If no, chose: \_\_\_\_\_

**ANALYSIS:** The following analyte(s) were estimated due to possible matrix interferences:

Mg, Na

**DOCUMENT CONTROL:** The following invalid defects resulted due to CCS program anomalies:

Initial Assessment: None

Full Assessment: None

**OTHER:** 1. ICP-MS Mean Values in the raw data are incorrect due to TJA software anomalies.  
2. Internal Standard calculations in the raw data are reported as the reciprocal values of the %RI (decimal form - not a percentage) with the control limits as stated in the SOW Exhibit D (ICP-MS) Section 12.11.1.

Signature: \_\_\_\_\_

Name & Title: \_\_\_\_\_

Date: 11/30/10



U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ISM01.2 Contract: EPW09040

Lab Code: SENTIN Case No.: 40778 NRAS No.: SDG No.: ME2692

EQUATIONS:

AES LW 200.7 Method: Concentration ( $\mu\text{g/L}$ ) =  $C \times (V_f/V) \times \text{DF}$

WHERE, C = Instrument value in  $\mu\text{g/L}$  (The average of all replicate exposures)

$V_f$  = Final digestion volume (mL)

V = Initial aliquot amount (mL)

DF = Dilution Factor

AES LS 3050B Method: Concentration (dry wt.) (mg/kg) =  $C \times ((V_f / (W \times S)) \times \text{DF} / 1000$

WHERE, C = Instrument Value in  $\mu\text{g/L}$  (The average of all replicate exposures)

$V_f$  = Final sample volume in Liters (mL)

W = Initial aliquot amount (g)

S = % Solids/100

DF = Dilution Factor

MS LW 200.8 Method: Concentration ( $\mu\text{g/L}$ ) =  $C \times (V_f/V) \times \text{DF}$

WHERE, C = Instrument value in  $\mu\text{g/L}$  (The average of all replicate integrations)

$V_f$  = Final digestion volume (50 mL)

V = Initial aliquot amount (50 mL)

DF = Dilution Factor

MS LS 3050B Method: Concentration (dry wt.) (mg/kg) =  $C \times ((V_f / (W \times S)) \times \text{DF} / 1000$

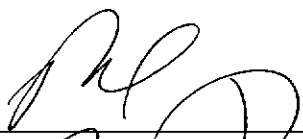
WHERE, C = Instrument Value in  $\mu\text{g/L}$  (The average of all replicate exposures)

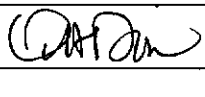
$V_f$  = Final sample volume in Liters (mL)

W = Initial aliquot amount (g)

S = % Solids/100

DF = Dilution Factor

Signature: 

Name & Title: Barbara J. Gure 

Date: 11/30/10

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc.

SOW No.: ISM01.2

Contract: EPW09040

Lab Code: SENTIN

Case No.: 40778

NRAS No.:

SDG No.: ME2092

EQUATIONS:

HG LW 7470A Method: Hg Concentration ( $\mu\text{g/L}$ ) =  $C \times DF$

WHERE, C = Instrument response in  $\mu\text{g/L}$  Hg from the calibration curve  
DF = Dilution Factor

HG LS 7471B Method: Hg Concentration ( $\text{mg/kg}$ ) =  $(C \times \{1/(W \times S)\}) \times DF \times 0.1$

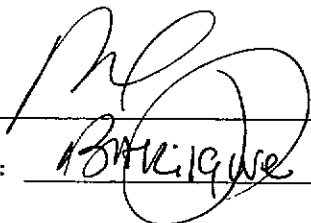
WHERE, C = Instrument value in  $\mu\text{g/L}$  from the calibration curve  
W = Initial aliquot amount (g)  
S = % Solids/100  
DF = Dilution Factor

CN LW Micro Distillation Method: CN Concentration ( $\mu\text{g/L}$ ) =  $C \times (V_f/V) \times DF$

WHERE, C = Instrument response in  $\mu\text{g/L}$  CN from the calibration curve  
DF = Dilution factor  
 $V_f$  = Final prepared volume (mL)  
V = Initial aliquot amount (mL)

CN LS Micro Distillation Method: CN Concentration ( $\text{mg/kg}$ ) =  $C \times ((V_f / (W \times S)) \times (1/1000) \times DF$

WHERE, C = Instrument response in  $\mu\text{g/L}$  CN from the calibration curve  
DF = Dilution factor  
 $V_f$  = Final prepared volume (mL)  
S = % Solids/100  
W = Initial aliquot amount (g)

Signature: 

Name & Title: B. H. G. W. E.

Date: 11/30/10

## USEPA - CLP

## COVER PAGE

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

SOW No.: ISM01.2

## EPA SAMPLE NO.

## Lab Sample ID.

ME2692

11379

ME2693

11380

ME2694

11381

ME2695

11382

ME2696

11383

ME2697

11384

ME2697D

11384S2

ME2697S

11384MS

ME2698

11385

ME2699

11386

Were ICP interelement corrections applied?

Yes/No YES

Were ICP background corrections applied?

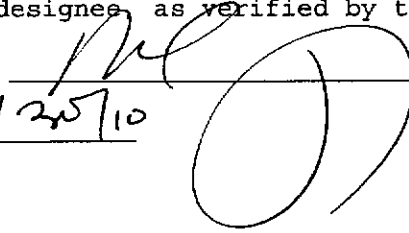
Yes/No YES

If yes-were raw data generated before  
application of background corrections?

Yes/No YES

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: BALZIGWEDate: 11/25/10Title: QA Manager

COVER PAGE

ISM01.2 (1/10)

## USEPA - CLP

1A-IN  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2692

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: (soil/water) WATER

Lab Sample ID: 11379

% Solids:

Date Received: 11/18/2010

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	174	J	E	P
7440-36-0	Antimony	1.3	J		P
7440-38-2	Arsenic	14.3			P
7440-39-3	Barium	121	J		P
7440-41-7	Beryllium	1.7	J		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	78800			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	20.9	J		P
7439-89-6	Iron	2290		E	P
7439-92-1	Lead	35.1			P
7439-95-4	Magnesium	20800			P
7439-96-5	Manganese	225			P
7439-97-6	Mercury	0.080	J		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	1880	J		P
7782-49-2	Selenium	35.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	14300			P
7440-28-0	Thallium	25.0	U		P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	20.4	J		P
57-12-5	Cyanide	5.1	J		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## USEPA - CLP

1A-IN  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2693

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: (soil/water) WATER

Lab Sample ID: 11380

% Solids:

Date Received: 11/18/2010

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	191	J	E	P
7440-36-0	Antimony	2.4	J		P
7440-38-2	Arsenic	9.0	J		P
7440-39-3	Barium	128	J		P
7440-41-7	Beryllium	1.6	J		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	102000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	3.8	J		P
7439-89-6	Iron	4810			P
7439-92-1	Lead	36.3			P
7439-95-4	Magnesium	26200			P
7439-96-5	Manganese	315			P
7439-97-6	Mercury	0.14	J		CV
7440-02-0	Nickel	40.0	U	ED	P
7440-09-7	Potassium	2640	J		P
7782-49-2	Selenium	35.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	47500			P
7440-28-0	Thallium	25.0	U		P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	1.8	J		P
57-12-5	Cyanide	5.7	J		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## USEPA - CLP

1A-IN  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2694

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: (soil/water) WATER

Lab Sample ID: 11381

% Solids:

Date Received: 11/18/2010

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	250			P
7440-36-0	Antimony	2.7	J		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	223			P
7440-41-7	Beryllium	1.2	J		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	148000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	10.4	J		P
7439-89-6	Iron	11500			P
7439-92-1	Lead	36.9			P
7439-95-4	Magnesium	33300		E	P
7439-96-5	Manganese	629			P
7439-97-6	Mercury	0.11	J		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	3460	J		P
7782-49-2	Selenium	3.2	J		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	222000		ED	P
7440-28-0	Thallium	25.0	U		P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	15.5	J		P
57-12-5	Cyanide	5.7	J		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## USEPA - CLP

1A-IN  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2695

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: (soil/water) WATER

Lab Sample ID: 11382

% Solids:

Date Received: 11/18/2010

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	181	J		P
7440-36-0	Antimony	2.1	J		P
7440-38-2	Arsenic	6.3	J		P
7440-39-3	Barium	133	J		P
7440-41-7	Beryllium	1.5	J		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	135000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	7.3	J		P
7439-89-6	Iron	12200			P
7439-92-1	Lead	38.9			P
7439-95-4	Magnesium	31300		E	P
7439-96-5	Manganese	680			P
7439-97-6	Mercury	0.072	J		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	2710	J		P
7782-49-2	Selenium	35.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	50000		ED	P
7440-28-0	Thallium	25.0	U		P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	8.0	J		P
57-12-5	Cyanide	7.4	J		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## USEPA - CLP

1A-IN  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2696

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: (soil/water) WATER

Lab Sample ID: 11383

% Solids:

Date Received: 11/18/2010

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	161	J	E	P
7440-36-0	Antimony	1.6	J		P
7440-38-2	Arsenic	12.0			P
7440-39-3	Barium	135	J		P
7440-41-7	Beryllium	1.9	J		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	82800			P
7440-47-3	Chromium	0.72	J		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	4.2	J		P
7439-89-6	Iron	2400			P
7439-92-1	Lead	34.1			P
7439-95-4	Magnesium	20100			P
7439-96-5	Manganese	241			P
7439-97-6	Mercury	0.11	J	E	CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	1660	J		P
7782-49-2	Selenium	35.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	10600			P
7440-28-0	Thallium	25.0	U		P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	60.0	U		P
57-12-5	Cyanide	5.8	J		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:



## USEPA - CLP

1A-IN  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2697

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: (soil/water) WATER

Lab Sample ID: 11384

% Solids:

Date Received: 11/18/2010

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	192	J		P
7440-36-0	Antimony	1.9	J		P
7440-38-2	Arsenic	12.5			P
7440-39-3	Barium	123	J		P
7440-41-7	Beryllium	1.7	J		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	78500			P
7440-47-3	Chromium	0.83	J		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	3.3	J		P
7439-89-6	Iron	2290			P
7439-92-1	Lead	33.4			P
7439-95-4	Magnesium	20600		E	P
7439-96-5	Manganese	229			P
7439-97-6	Mercury	0.10	J		CV
7440-02-0	Nickel	1.6	J		P
7440-09-7	Potassium	1940	J		P
7782-49-2	Selenium	35.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	17900		E	P
7440-28-0	Thallium	25.0	U		P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	60.0	U		P
57-12-5	Cyanide	7.9	J		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## USEPA - CLP

1A-IN  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2698

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: (soil/water) WATER

Lab Sample ID: 11385

% Solids:

Date Received: 11/18/2010

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	193	J		P
7440-36-0	Antimony	2.0	J		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	156	J		P
7440-41-7	Beryllium	1.3	J		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	104000			P
7440-47-3	Chromium	0.90	J		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	3.9	J		P
7439-89-6	Iron	104			P
7439-92-1	Lead	38.7			P
7439-95-4	Magnesium	27000		E	P
7439-96-5	Manganese	497			P
7439-97-6	Mercury	0.099	J		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	2770	J		P
7782-49-2	Selenium	35.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	48000		E	P
7440-28-0	Thallium	1.5	J		P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	60.0	U		P
57-12-5	Cyanide	4.7	J		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## USEPA - CLP

1A-IN  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2699

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: (soil/water) WATER

Lab Sample ID: 11386

% Solids:

Date Received: 11/18/2010

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	41.8	J		P
7440-36-0	Antimony	2.5	J		P
7440-38-2	Arsenic	10.9			P
7440-39-3	Barium	122	J		P
7440-41-7	Beryllium	1.2	J		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	85600			P
7440-47-3	Chromium	0.83	J		P
7440-48-4	Cobalt	1.1	J		P
7440-50-8	Copper	3.4	J		P
7439-89-6	Iron	2450			P
7439-92-1	Lead	34.3			P
7439-95-4	Magnesium	21800		E	P
7439-96-5	Manganese	233			P
7439-97-6	Mercury	0.12	J		CV
7440-02-0	Nickel	3.8	J		P
7440-09-7	Potassium	1880	J		P
7782-49-2	Selenium	35.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	21100		E	P
7440-28-0	Thallium	2.5	J		P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	1.5	J		P
57-12-5	Cyanide	4.2	J		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## USEPA - CLP

3-IN  
BLANKS

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Preparation Blank Matrix (soil.water/wipe/filter): WATER

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): UG/L

Analyte	Initial Calibration		Continuing Calibration						Preparation Blank		M
	Blank (ug/L)	C	1	C	2	C	3	C		C	
Aluminum	200	U	-37	J	34.7	J			200.000	U	P
Antimony	60.0	U	60.0	U	60.0	U			60.000	U	P
Arsenic	10.0	U	10.0	U	10.0	U			10.000	U	P
Barium	36.4	J	35.3	J	38.2	J			36.643	J	P
Beryllium	1.0	J	1.6	J	1.6	J			1.511	J	P
Cadmium	5.0	U	5.0	U	5.0	U			5.000	U	P
Calcium	5000	U	5000	U	5000	U			5000.000	U	P
Chromium	10.0	U	10.0	U	10.0	U			10.000	U	P
Cobalt	50.0	U	50.0	U	50.0	U			50.000	U	P
Copper	25.0	U	25.0	U	25.0	U			25.000	U	P
Iron	-20	J	-13	J	21.8	J			26.830	J	P
Lead	10.0	U	10.0	U	10.0	U			10.000	U	P
Magnesium	141	J	-330	J	-230	J			-83.349	J	P
Manganese	15.0	U	15.0	U	15.0	U			15.000	U	P
Mercury	0.077	J	0.049	J	0.066	J			0.066	J	CV
Nickel	40.0	U	40.0	U	40.0	U			40.000	U	P
Potassium	191	J	190	J	158	J			167.637	J	P
Selenium	35.0	U	35.0	U	35.0	U			2.750	J	P
Silver	10.0	U	10.0	U	10.0	U			10.000	U	P
Sodium	5000	U	5000	U	5000	U			5000.000	U	P
Thallium	25.0	U	25.0	U	2.8	J			25.000	U	P
Vanadium	50.0	U	50.0	U	50.0	U			50.000	U	P
Zinc	60.0	U	60.0	U	60.0	U			60.000	U	P
Cyanide	1.5	J	1.4	J	1.8	J			1.870	J	AS

## USEPA - CLP

3-IN  
BLANKS

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Preparation Blank Matrix (soil.water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration		Continuing Calibration						Preparation Blank		M
	Blank (ug/L)	C	1	C	2	C	3	C		C	
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium	5000	U	5000	U	5000	U					P
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

## USEPA - CLP

5A-IN  
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ME2697S

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: WATER

% Solids for Sample:

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2290	192 J	2000	105		P
Antimony	75-125	90.3	1.9 J	100	88		P
Arsenic	75-125	54.4	12.5	40.0	105		P
Barium	75-125	2200	123 J	2000	104		P
Beryllium	75-125	49.8	1.7 J	50.0	96		P
Cadmium	75-125	46.3	5.0 U	50.0	93		P
Calcium							NR
Chromium	75-125	203	0.83 J	200	101		P
Cobalt	75-125	526	50.0 U	500	105		P
Copper	75-125	253	3.3 J	250	100		P
Iron	75-125	3430	2290	1000	114		P
Lead	75-125	53.7	33.4	20.0	102		P
Magnesium							NR
Manganese	75-125	759	229	500	106		P
Mercury	75-125	0.99	0.10 J	1.0	89		CV
Nickel	75-125	528	1.6 J	500	105		P
Potassium							NR
Selenium	75-125	47.8	35.0 U	50.0	96		P
Silver	75-125	49.6	10.0 U	50.0	99		P
Sodium							NR
Thallium	75-125	54.5	25.0 U	50.0	109		P
Vanadium	75-125	527	50.0 U	500	105		P
Zinc	75-125	506	60.0 U	500	101		P
Cyanide	75-125	93.3	7.9 J	100	85		AS

Comments:

FORM VA-IN

ISM01.2 (1/10)

## USEPA - CLP

6-IN  
DUPLICATES

EPA SAMPLE NO.

ME2697D

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: WATER

% Solids for Sample:

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		192	J	149	J	25		P
Antimony		1.9	J	1.3	J	38		P
Arsenic	10.0	12.5		15.5		21		P
Barium		123	J	123	J	0		P
Beryllium		1.7	J	1.3	J	27		P
Cadmium		5.0	U	5.0	U			P
Calcium		78500		79300		1		P
Chromium		0.83	J	0.77	J	8		P
Cobalt		50.0	U	50.0	U			P
Copper		3.3	J	3.4	J	3		P
Iron		2290		2320		1		P
Lead	10.0	33.4		35.1		5		P
Magnesium	5000.0	20600		20600		0		P
Manganese		229		236		3		P
Mercury		0.10	J	0.087	J	14		CV
Nickel		1.6	J	1.4	J	13		P
Potassium		1940	J	1950	J	1		P
Selenium		35.0	U	35.0	U			P
Silver		10.0	U	10.0	U			P
Sodium	5000.0	17900		18500		3		P
Thallium		25.0	U	25.0	U			P
Vanadium		50.0	U	50.0	U			P
Zinc		60.0	U	0.90	J	200		P
Cyanide		7.9	J	4.4	J	57		AS

## USEPA - CLP

8-IN  
ICP-AES AND ICP-MS SERIAL DILUTIONS

EPA SAMPLE NO.

ME2697L

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Matrix: WATER

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Difference	Q	M
Aluminum	192 J	870 J	353		P
Antimony	1.9 J	300 U	100		P
Arsenic	12.5	78.9	531		P
Barium	123 J	275 J	124		P
Beryllium	1.7 J	9.2 J	441		P
Cadmium	5.0 U	25.0 U			P
Calcium	78500	76000	3		P
Chromium	0.83 J	50.0 U	100		P
Cobalt	50.0 U	250 U			P
Copper	3.3 J	15.5 J	370		P
Iron	2290	2310	1		P
Lead	33.4	32.2 J	4		P
Magnesium	20600	18000 J	13	E	P
Manganese	229	231	1		P
Nickel	1.6 J	200 U	100		P
Potassium	1940 J	2520 J	30		P
Selenium	35.0 U	175 U			P
Silver	10.0 U	50.0 U			P
Sodium	17900	21000 J	17	E	P
Thallium	25.0 U	12.9 J			P
Vanadium	50.0 U	250 U			P
Zinc	60.0 U	300 U			P

FORM VIII-IN

ISM01.2 (1/10)



## USEPA - CLP

9-IN  
METHOD DETECTION LIMIT (ANNUALLY)

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Instrument Type: P

Instrument ID: P1

Date: 06/04/2010

Preparation Method: 200.7

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	MDL
Aluminum	396	25.1
Antimony	207	1.2
Arsenic	189	3.8
Barium	455	3.4
Beryllium	313	0.21
Cadmium	229	0.31
Calcium	318	94.3
Chromium	268	0.51
Cobalt	229	1.0
Copper	220	2.1
Iron	260	5.6
Lead	220	1.4
Magnesium	279	71.8
Manganese	258	0.30
Mercury		
Nickel	232	0.75
Potassium	767	118
Selenium	196	2.3
Silver	328	1.2
Sodium	589	79.5
Thallium	191	1.5
Vanadium	292	1.2
Zinc	206	0.87
Cyanide		

## Comments:

P1: ICP 61E TRACE ANALYZER

## USEPA - CLP

9-IN  
METHOD DETECTION LIMIT (ANNUALLY)

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: MB2692

Instrument Type: CV

Instrument ID: CV0

Date: 01/11/2010

Preparation Method: 7470A

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	MDL
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury	254	0.029
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		
Cyanide		

## Comments:

CV0: LEMAN HYDRA AA- MERCURY ANALYZER

## USEPA - CLP

9-IN  
METHOD DETECTION LIMIT (ANNUALLY)

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Instrument Type: AS

Instrument ID: AS0

Date: 01/13/2010

Preparation Method: Micro-distillation

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	MDL
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		
Cyanide	570	1.3

## Comments:

AS0: Lachat

USEPA - CLP  
13-IN  
ANALYSIS RUN LOG

Lab Name: Sentinel

Contract: EPW09040

Lab Code: SENTIN Case No.: 40778

Mod. Ref. No.

SDG No.: ME2692

Instrument ID: P1

Analysis Method: P

Start date: 11/21/2010

End date: 11/21/2010

EPA Sample No.	D/F	Time	Analytes																					
			A l	S b	A s	B a	B e	C d	C a	C r	C o	C u	F e	P b	M g	M n	H g	N i	K e	S e	A g	N a	T l	V n
SO	1.0	1346	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S	1.0	1352	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S	1.0	1358	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S	1.0	1404	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S	1.0	1410	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S	1.0	1416	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S	1.0	1422	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	0	1428																						
ICV	1.0	1434	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICB	1.0	1440	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1.0	1446	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICSAB	1.0	1452	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV	1.0	1458	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB	1.0	1504	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PBW	1.0	1510	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LCS	1.0	1516	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2697L	5.0	1522	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2697	1.0	1529	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2697D	1.0	1535	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2697S	1.0	1541	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2697A	1.0	1547																						
ME2692	1.0	1553	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2693	1.0	1559	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2694	1.0	1605	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2695	1.0	1611	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2696	1.0	1617	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2698	1.0	1624	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME2699	1.0	1630	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	0	1636																						
CCV	1.0	1644	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB	1.0	1650	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

13-IN  
ANALYSIS RUN LOG

End date: 11/23/2010

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13-IN  
ANALYSIS RUN LOG

Contract: EPW09040

SDG No. : ME2692

Analysis Method: CV

End date: 11/29/2010

[illegible]

USEPA - CLP  
13-IN  
ANALYSIS RUN LOG

Lab Name: Sentinel Contract: EPW09040  
Lab Code: SENTIN Case No.: 40778 Mod. Ref. No. SDG No.: ME2692  
Instrument ID: AS0 Analysis Method: AS  
Start date: 11/24/2010 End date: 11/24/2010

EPA Sample No.	D/F	Time	Analytes																							
			A l	S b	A s	B a	B e	C d	C a	C r	C o	C u	F e	P b	M g	M n	H g	N i	K	S e	A g	N a	T l	V	Z n	C N
S0	1.0	1529																								X
S10.0	1.0	1530																								X
S50.0	1.0	1531																								X
S100.0	1.0	1532																								X
S200.0	1.0	1533																								X
S400.0	1.0	1534																								X
ICV	1.0	1535																								X
ICB	1.0	1536																								X
CCV	1.0	1537																								X
CCB	1.0	1538																								X
PBW	1.0	1539																								X
ME2697	1.0	1540																								X
ME2697D	1.0	1541																								X
ME2697S	1.0	1542																								X
ME2692	1.0	1543																								X
ME2693	1.0	1544																								X
ME2694	1.0	1545																								X
ME2695	1.0	1546																								X
ME2696	1.0	1547																								X
ME2698	1.0	1548																								X
ME2699	1.0	1549																								X
ZZZZZZ	1.0	1550																								
ZZZZZZ	1.0	1551																								
CCV	1.0	1552																								X
CCB	1.0	1553																								X

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ~ REGION V**

ESD Central Regional Laboratory  
Data Tracking Form for Contract Samples

Sample Delivery Group: ME3492 CERCLIS No: 04SFND57820  
Case No: 40778 Site Name/Location: Windham Alloys (OH)  
Contractor or EPA Lab: Sentinel Data User: DEPA  
No. of Samples: 8 Date Sampled or Date Received: 8 Dec 2010

Have Chain-of-Custody records been received? Yes ☒ No ☐

Have traffic reports or packing lists been received? Yes ☒ No ☐

If no, are traffic reports or packing list numbers written on the Chain-of-Custody Record?

Yes ☐ No ☐

If no, which traffic report or packing list numbers are missing?

\_\_\_\_\_

Are basic data forms in? Yes ☒ No ☐

No of samples claimed: 8 No. of samples received: \_\_\_\_\_

Received by: Pat Agnew Date: 8 Dec 2010

Received by LSSS: Pat Agnew Date: 6 Dec 2010

Review started: 1/4/2011 Reviewer Signature: Lauren D

Total time spent on review: 6.5 Date review completed: 1/5/2011

Copied by: A. C. Harvey Date: Jan 18, 2011

Mailed to user by: Pat Agnew Date: 18 Jan 2011

**DATA USER:**

Please fill in the blanks below and return this form to:

Sylvia Griffin, Data Mgmt. Coordinator, Region V, ML-10C

Data received by: \_\_\_\_\_ Date: \_\_\_\_\_

Data review received by: \_\_\_\_\_ Date: \_\_\_\_\_

Inorganic Data Complete

☐ Suitable for Intended Purpose ☐ T if OK

Organic Data Complete

☐ Suitable for Intended Purpose ☐ T if OK

Dioxin data Complete

☐ Suitable for Intended Purpose ☐ T if OK

SAS Data Complete

☐ Suitable for Intended Purpose ☐ T if OK

**PROBLEMS:** Please indicate reasons why data are not suitable for your uses.

Received by Data Mgmt. Coordinator for Files. Date: \_\_\_\_\_



ESAT Controlled Number: ESAT 5.217.00387- pg 18 Jan 2011

DATE: January 18, 2011

Ohio EPA Field Office  
ATTN: **Mr. Ed Link**  
4675 Homer Ohio Lane  
Groveport, OH 43125

SITE NAME: Windham Alloys (OH) - **level 3 data validation**

<u>Case</u>	<u>Lab</u>	<u>Samples</u>	<u>SDG</u>	<u>Matrix</u>
40778	Sentinel	8	ME2692	water

**Analysis:** metals & cyanide

Upon receipt of data, please check each package for completeness and note any missing deliverables below.

**PLEASE! Send this form back to Sylvia Griffin, Data Management Coordinator after filling in the blanks below.**

Data Received by: \_\_\_\_\_ Date: \_\_\_\_\_

PROBLEMS:

Please indicate if data is complete, and note if there are any deliverables missing from the cases noted above.

Received by Data Management Coordinator, CRL for file.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

FROM: **U.S. EPA - Region 5**  
Sylvia Griffin  
Chicago Regional Laboratory  
536 S. Clark, 10th Floor  
Chicago, IL 60605

Sent By: Pat Joyner  
Data Coordinator  
ESAT Region 5 - **TechLaw Inc.**



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## **Appendix B**

# **Contract Required Quantitation Limits (CRQL)**

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Table 1. Target Compound List (TCL) and Contract Required Quantitation Limits (CRQLs) for SOM01.1\*

Quantitation Limits						Quantitation Limits					
	Trace Water by SIM (µg/L)	Trace Water (µg/L)	Low Water (µg/L)	Low Soil (µg/kg)	Med. Soil (µg/kg)		Trace Water by SIM (µg/L)	Trace Water (µg/L)	Low Water (µg/L)	Low Soil (µg/kg)	Med. Soil (µg/kg)
<b><u>VOLATILES</u></b>						<b><u>VOLATILES (CON'T)</u></b>					
1. Dichlorodifluoromethane		0.50	5.0	5.0	250	40. Ethylbenzene		0.50	5.0	5.0	250
2. Chloromethane		0.50	5.0	5.0	250	41. o-Xylene		0.50	5.0	5.0	250
3. Vinyl Chloride		0.50	5.0	5.0	250	42. m, p-Xylene		0.50	5.0	5.0	250
4. Bromomethane		0.50	5.0	5.0	250	43. Styrene		0.50	5.0	5.0	250
5. Chloroethane		0.50	5.0	5.0	250	44. Bromoform		0.50	5.0	5.0	250
6. Trichlorofluoromethane		0.50	5.0	5.0	250	45. Isopropylbenzene		0.50	5.0	5.0	250
7. 1,1-Dichloroethene		0.50	5.0	5.0	250	46. 1,1,2,2-Tetrachloroethane		0.50	5.0	5.0	250
8. 1,1,2-Trichloro-1,2,2-trifluoroethane		0.50	5.0	5.0	250	47. 1,3-Dichlorobenzene		0.50	5.0	5.0	250
9. Acetone		5.0	10	10	500	48. 1,4-Dichlorobenzene		0.50	5.0	5.0	250
10. Carbon Disulfide		0.50	5.0	5.0	250	49. 1,2-Dichlorobenzene		0.50	5.0	5.0	250
11. Methyl acetate		0.50	5.0	5.0	250	50. 1,2-Dibromo-3-chloropropane	0.050	0.50	5.0	5.0	250
12. Methylene chloride		0.50	5.0	5.0	250	51. 1,2,4-Trichlorobenzene		0.50	5.0	5.0	250
13. trans-1,2-Dichloroethene		0.50	5.0	5.0	250	52. 1,2,3-Trichlorobenzene		0.50	5.0	5.0	250
14. Methyl tert-butyl ether		0.50	5.0	5.0	250						
							Low Water by SIM (µg/L)	Low Water (µg/L)	Low Soil by SIM (µg/kg)	Low Soil (µg/kg)	Med. Soil (µg/kg)
						<b><u>SEMIVOLATILES</u></b>					
15. 1,1-Dichloroethane		0.50	5.0	5.0	250	53. Benzaldehyde		5.0		170	5000
16. cis-1,2-Dichloroethane		0.50	5.0	5.0	250	54. Phenol		5.0		170	5000
17. 2-Butanone		5.0	10	10	500	55. bis-(2-chloroethyl) ether		5.0		170	5000
18. Bromochloromethane		0.50	5.0	5.0	250	56. 2-Chlorophenol		5.0		170	5000
19. Chloroform		0.50	5.0	5.0	250	57. 2-Methylphenol		5.0		170	5000
20. 1,1,1-Trichloroethane		0.50	5.0	5.0	250	58. 2,2'-Oxybis (1-chloropropane)		5.0		170	5000
21. Cyclohexane		0.50	5.0	5.0	250	59. Acetophenone		5.0		170	5000
22. Carbon tetrachloride		0.50	5.0	5.0	250	60. 4-Methylphenol		5.0		170	5000
23. Benzene		0.50	5.0	5.0	250	61. N-Nitroso-di-n propylamine		5.0		170	5000
24. 1,2-Dichloroethane		0.50	5.0	5.0	250	62. Hexachloroethane		5.0		170	5000
25. 1,4-Dioxane	2.0	20	100	100	5000	63. Nitrobenzene		5.0		170	5000
26. Trichloroethene		0.50	5.0	5.0	250	64. Isophorone		5.0		170	5000
27. Methylcyclohexane		0.50	5.0	5.0	250	65. 2-Nitrophenol		5.0		170	5000
28. 1,2-Dichloropropane		0.50	5.0	5.0	250	66. 2,4-Dimethylphenol		5.0		170	5000
29. Bromodichloromethane		0.50	5.0	5.0	250	67. Bis (2-chloroethoxy) methane		5.0		170	5000
30. cis-1,3-Dichloropropene		0.50	5.0	5.0	250	68. 2,4-Dichlorophenol		5.0		170	5000
31. 4-Methyl-2-pentanone		5.0	10	10	500	69. Napthalene	0.10	5.0	3.3	170	5000
32. Toluene		0.50	5.0	5.0	250	70. 4-Chloroaniline		5.0		170	5000
33. trans-1,3-Dichloropropene		0.50	5.0	5.0	250	71. Hexachlorobutadiene		5.0		170	5000
34. 1,1,2-Trichloroethane		0.50	5.0	5.0	250	72. Caprolactam		5.0		170	5000
35. Tetrachloroethene		0.50	5.0	5.0	250	73. 4-Chloro-3-methylphenol		5.0		170	5000
36. 2-Hexanone		5.0	10	10	500	74. 2-Methylnapthalene	0.10	5.0	3.3	170	5000
37. Dibromochloromethane		0.50	5.0	5.0	250	75. Hexachlorocyclopentadiene		5.0		170	5000
38. 1,2-Dibromoethane	0.050	0.50	5.0	5.0	250	76. 2,4,6-Trichlorophenol		5.0		170	5000
39. Chlorobenzene		0.50	5.0	5.0	250	77. 2,4,5-Trichlorophenol		5.0		170	5000

\* For volatiles, quantitation limits for medium soils are approximately 50 times the quantitation limits for low soils. For semivolatile medium soils, quantitation limits are approximately 50 times the quantitation limits for low soils.

Table 1. Target Compound List (TCL) and Contract Required Quantitation Limits (CRLs) for SOM01.1\* (Con't)

Quantitation Limits						Quantitation Limits					
	Low Water by SIM (µg/L)	Low Water (µg/L)	Low Soil by SIM (µg/kg)	Low Soil (µg/kg)	Med. Soil (µg/kg)		Low Water by SIM (µg/L)	Low Water (µg/L)	Low Soil by SIM (µg/kg)	Low Soil (µg/kg)	Med. Soil (µg/kg)
<b>SEMIVOLATILES (CON'T)</b>						<b>SEMIVOLATILES (CON'T)</b>					
78. 1,1'-Biphenyl		5.0		170	5000	115. Benzo(a)pyrene	0.10	5.0	3.3	170	5000
79. 2-Chloronaphthalene		5.0		170	5000	116. Indeno(1,2,3-cd)pyrene	0.10	5.0	3.3	170	5000
80. 2-Nitroaniline		10		330	10000	117. Dibenzo(a,h)anthracene	0.10	5.0	3.3	170	5000
81. Dimethylphthalate		5.0		170	5000	118. Benzo(g,h,i)perylene	0.10	5.0	3.3	170	5000
82. 2,6-Dinitrotoluene		5.0		170	5000	119. 2,3,4,6-Tetrachlorophenol		5.0		170	5000
83. Acenaphthylene	0.10	5.0	3.3	170	5000	<b>PESTICIDES</b>		<b>Water (µg/L)</b>		<b>Soil (µg/kg)</b>	
84. 3-Nitroaniline		10		330	10000	120. alpha-BHC		0.050		1.7	
85. Acenaphthene	0.10	5.0	3.3	170	5000	121. beta-BHC		0.050		1.7	
86. 2,4-Dinitrophenol		10		330	10000	122. delta-BHC		0.050		1.7	
87. 4-Nitrophenol		10		330	10000	123. gamma-BHC (Lindane)		0.050		1.7	
88. Dibenzofuran		5.0		170	5000	124. Heptachlor		0.050		1.7	
89. 2,4-Dinitrotoluene		5.0		170	5000	125. Aldrin		0.050		1.7	
90. Diethylphthalate		5.0		170	5000	126. Heptachlor epoxide		0.050		1.7	
91. Fluorene	0.10	5.0	3.3	170	5000	127. Endosulfan I		0.050		1.7	
92. 4-Chlorophenyl phenyl ether		5.0		170	5000	128. Dieldrin		0.10		3.3	
93. 4-Nitroaniline		10		330	10000	129. 4,4'-DDE		0.10		3.3	
94. 4,6-Dinitro-2-methylphenol		10		330	10000	130. Endrin		0.10		3.3	
95. N-Nitrosodiphenylamine		5.0		170	5000	131. Endosulfan II		0.10		3.3	
96. 1,2,4,5-Tetrachlorobenzene		5.0		170	5000	132. 4,4'-DDD		0.10		3.3	
97. 4-Bromophenyl phenyl ether		5.0		170	5000	133. Endosulfan sulfate		0.10		3.3	
98. Hexachlorobenzene		5.0		170	5000	134. 4,4'-DDT		0.10		3.3	
99. Atrazine		5.0		170	5000	135. Methoxychlor		0.50		17	
100. Pentachlorophenol	0.20	10	6.7	330	10000	136. Endrin ketone		0.10		3.3	
101. Phenanthrene	0.10	5.0	3.3	170	5000	137. Endrin aldehyde		0.10		3.3	
102. Anthracene	0.10	5.0	3.3	170	5000	138. alpha-Chlordane		0.050		1.7	
103. Carbazole		5.0		170	5000	139. gamma-Chlordane		0.050		1.7	
104. Di-n-butylphthalate		5.0		170	5000	140. Toxaphene		5.0		170	
105. Fluoranthene	0.10	5.0	3.3	170	5000	<b>AROCLORS</b>		<b>Water (µg/L)</b>		<b>Soil (µg/kg)</b>	
106. Pyrene	0.10	5.0	3.3	170	5000	141. Aroclor-1016		1.0		33	
107. Butylbenzylphthalate		5.0		170	5000	142. Aroclor-1221		1.0		33	
108. 3,3'-Dichlorobenzidine		5.0		170	5000	143. Aroclor-1232		1.0		33	
109. Benzo(a)anthracene	0.10	5.0	3.3	170	5000	144. Aroclor-1242		1.0		33	
110. Chrysene	0.10	5.0	3.3	170	5000	145. Aroclor-1248		1.0		33	
111. Bis(2-ethylhexyl)phthalate		5.0		170	5000	146. Aroclor-1254		1.0		33	
112. Di-n-octylphthalate		5.0		170	5000	147. Aroclor-1260		1.0		33	
113. Benzo(b)fluoranthene	0.10	5.0	3.3	170	5000	148. Aroclor-1262		1.0		33	
114. Benzo(k)fluoranthene	0.10	5.0	3.3	170	5000	149. Aroclor-1268		1.0		33	

\* For volatiles, quantitation limits for medium soils are approximately 50 times the quantitation limits for low soils. For semivolatile medium soils, quantitation limits are approximately 30 times the quantitation limits for low soils.

**Table 1. Inorganic Target Analyte List and Contract Required Quantitation Limits (CRQLs)**

<u>Analyte</u>	<u>ICP-AES CRQL for Water (µg/L)</u>	<u>ICP-AES CRQL for Soil (mg/kg)</u>	<u>ICP-MS CRQL for Water (µg/L)</u>
1. Aluminum	200	20	--
2. Antimony	60	6	2
3. Arsenic	10	1	1
4. Barium	200	20	10
5. Beryllium	5	0.5	1
6. Cadmium	5	0.5	1
7. Calcium	5000	500	--
8. Chromium	10	1	2
9. Cobalt	50	5	1
10. Copper	25	2.5	2
11. Iron	100	10	--
12. Lead	10	1	1
13. Magnesium	5000	500	--
14. Manganese	15	1.5	1
15. Mercury	0.2	0.1	--
16. Nickel	40	4	1
17. Potassium	5000	500	--
18. Selenium	35	3.5	5
19. Silver	10	1	1
20. Sodium	5000	500	--
21. Thallium	25	2.5	1
22. Vanadium	50	5	5
23. Zinc	60	6	2
24. Cyanide	10	2.5	--

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# **Appendix C**

## **Photographic Log**

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**WINDHAM ALLOYS  
SITE REASSESSMENT  
PHOTOGRAPHIC LOG  
WINDHAM TOWNSHIP, PORTAGE COUNTY, OHIO**



**Photo No: 1**                      **Date:** 11/15/10  
**Photographer:** A. Kocher    **Direction:** North  
**Subject:** A view of the offsite public supply well #9 (PS-9).



**Photo No: 2**                      **Date:** 11/15/10  
**Photographer:** A. Kocher    **Direction:** North  
**Subject:** A closer view of offsite public supply well #9 (PS-9).



**Photo No: 3**                      **Date:** 11/15/10  
**Photographer:** A. Kocher    **Direction:** East  
**Subject:** A view of the offsite public supply well #10 (PS-10).



**Photo No: 4**                      **Date:** 11/15/10  
**Photographer:** A. Kocher    **Direction:** South  
**Subject:** A view of the offsite monitoring well #2 (MW-2).



**WINDHAM ALLOYS**  
**SITE REASSESSMENT**  
**PHOTOGRAPHIC LOG (cont.)**  
**WINDHAM TOWNSHIP, PORTAGE COUNTY, OHIO**



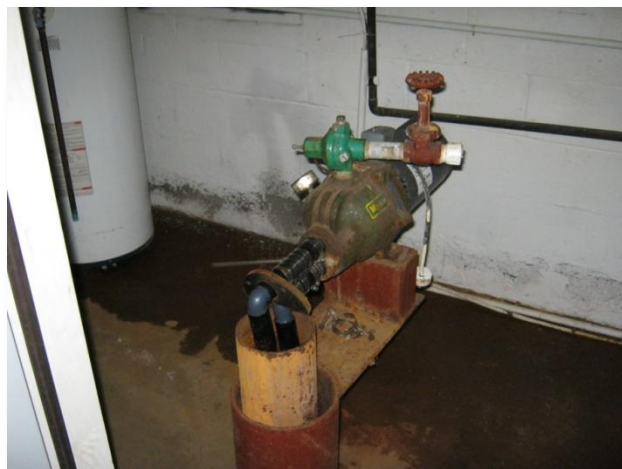
**Photo No: 5**                      **Date:** 11/15/10  
**Photographer:** A. Kocher    **Direction:** West  
**Subject:** A view of offsite sampling activities at MW-2.



**Photo No: 6**                      **Date:** 11/16/10  
**Photographer:** A. Kocher    **Direction:** West  
**Subject:** A view of sampling activities at onsite monitoring well #1 and duplicate monitoring well #3 (MW-1/MW-3).



**Photo No: 7**                      **Date:** 11/16/10  
**Photographer:** A. Kocher    **Direction:** West  
**Subject:** Another view of onsite sampling activities at MW-1/MW-3.



**Photo No: 8**                      **Date:** 11/16/10  
**Photographer:** A. Kocher    **Direction:** East  
**Subject:** A view of the onsite existing well (EW-1) in the southeast building.

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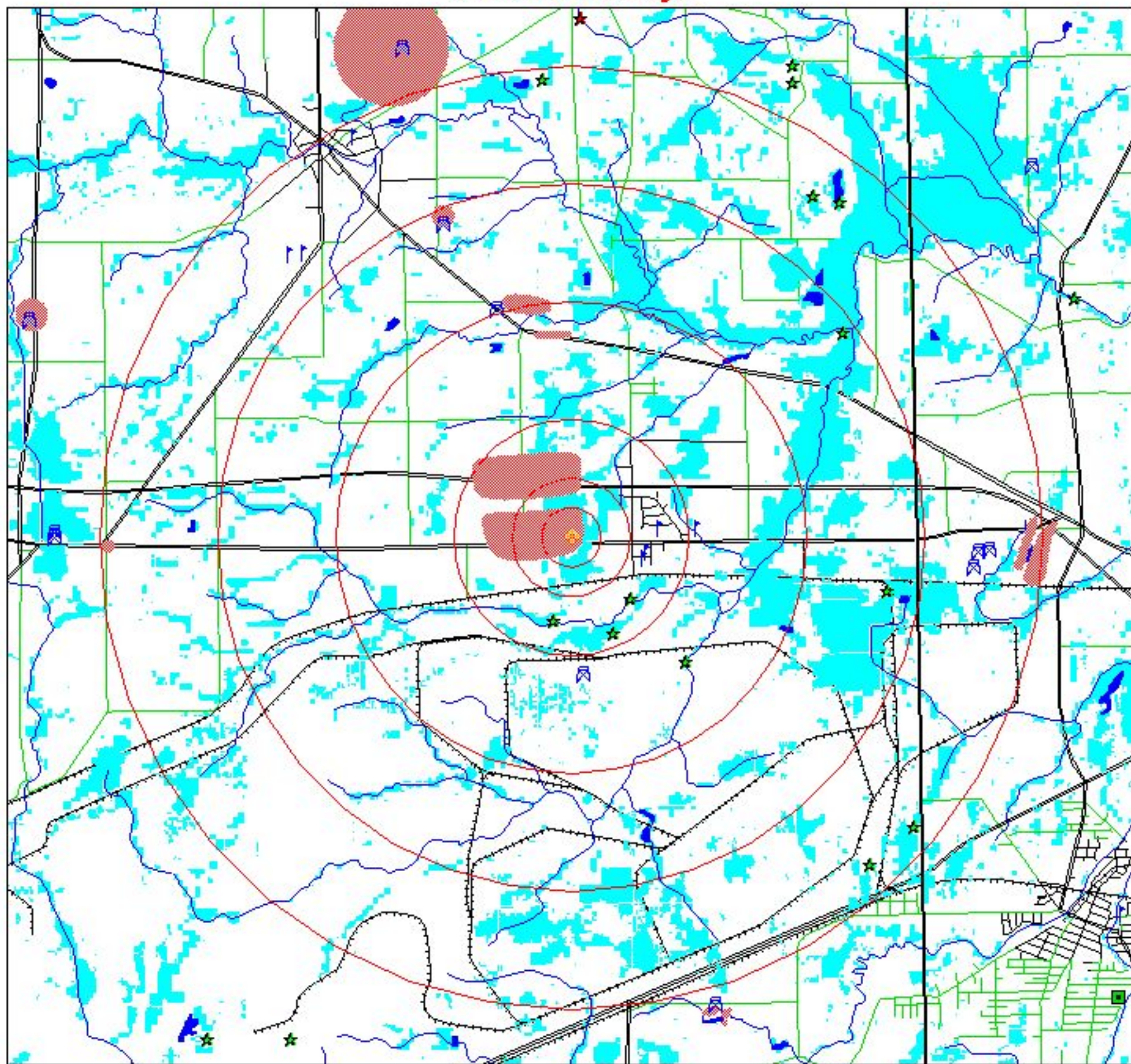
# **Appendix D**

## **GIS Maps and Data Package**

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## Portage County Windham Alloys



- Site
- School
- Hospital
- Public Surface Water Systems
- Public Ground Water Systems
- US Endangered/Threatened Species
- Ohio Endangered/Threatened Species

- Wetland Area
- Lakes & Ponds
- Wellhead Protection Area
- Limit of Radius From Site
- County Boundaries

- Rivers & Streams
- Railroad
- State and Federal Highways
- Local Roads
- Municipal Roads

N



2

0

2 Miles





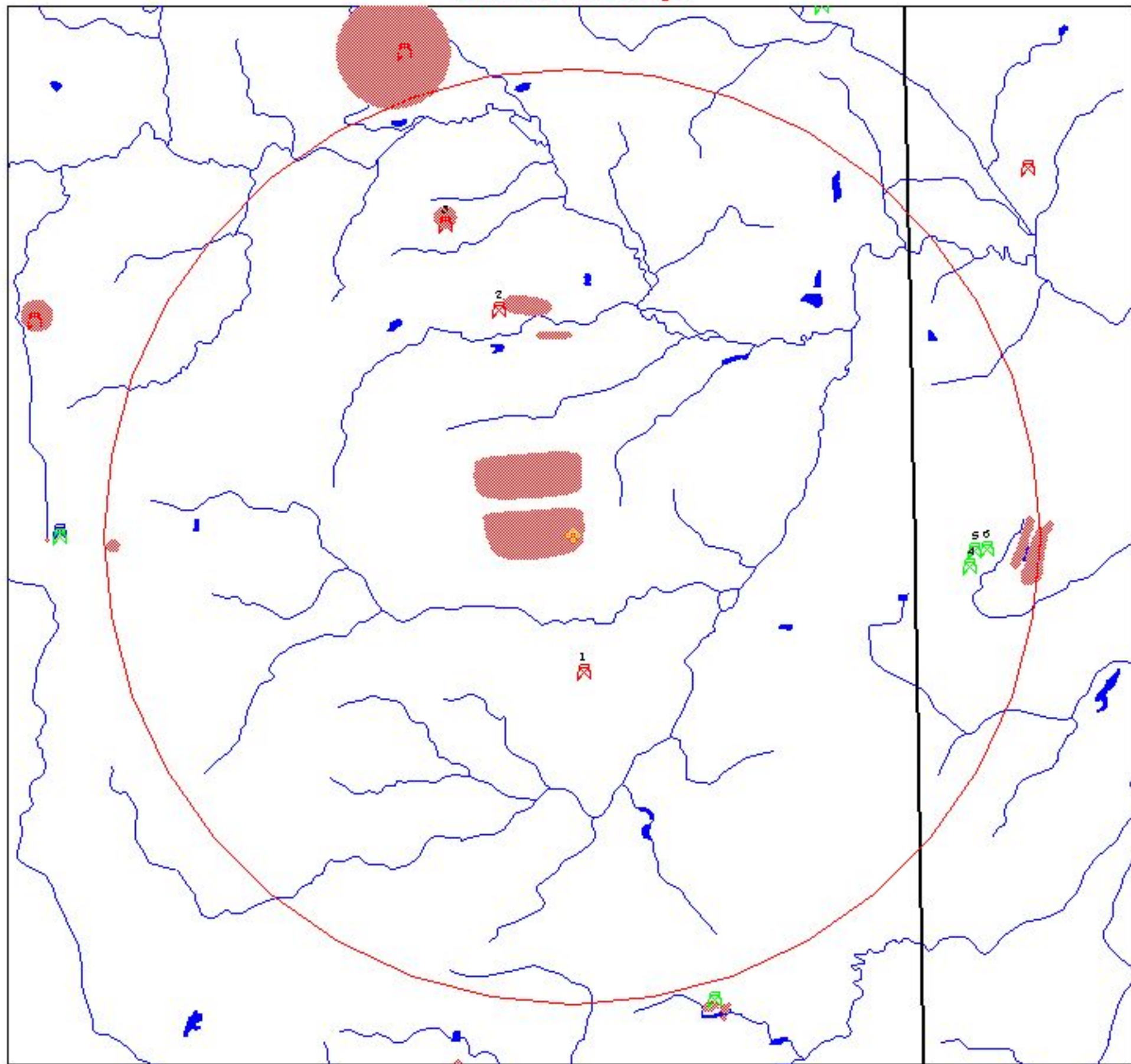


Division of Emergency & Remedial Response

GEOGRAPHIC INFORMATION SYSTEM 4 MILE RADIUS MAP

PUBLIC GROUND WATER SYSTEMS

Windham Alloys



Site

Public Ground Water Systems

Community

Non-Community/Transient

Non-Community/Non-Transient

Rivers & Streams

Wellhead Protection Area

Lakes & Ponds

Limit of Radius From Site

County Boundaries

1 0 1 Miles

N



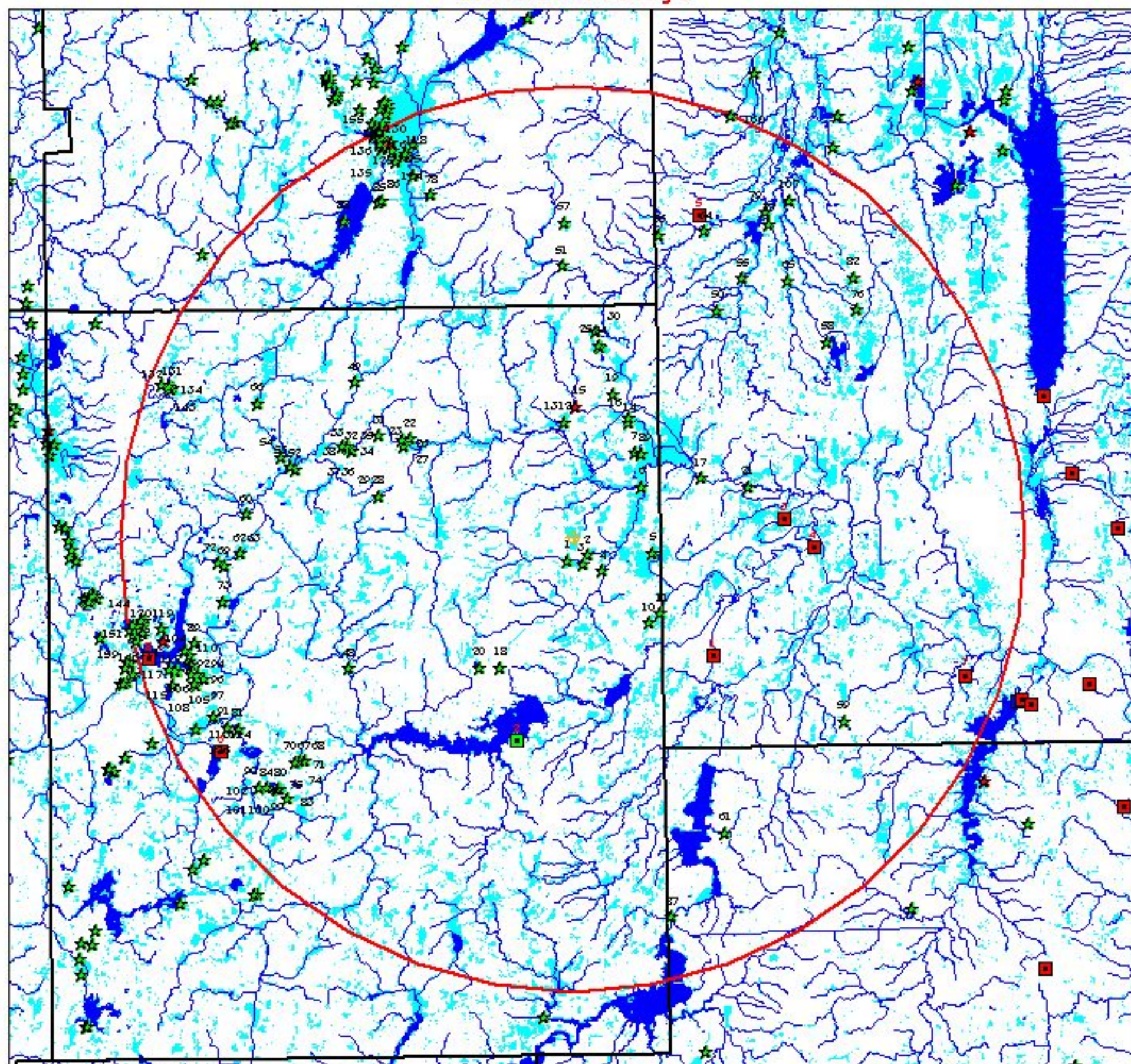


Division of Emergency & Remedial Response

GEOGRAPHIC INFORMATION SYSTEM 15-MILE RADIUS MAP

NATURAL HERITAGE DATA

Windham Alloys



- Site
- US Endangered/Threatened Species
- Ohio Endangered/Threatened Species

Public Surface Water Systems

- Community
- Non-Community/Transient
- Non-Community/Non-Transient

- Rivers & Streams
- Wetland Area
- Lakes & Ponds
- Limit of Radius From Site
- County Boundaries

4 0 4 8 Miles





**Windham Alloys****Censes Data**

RADIUS	TOTAL	WHITE	BLACK	INDIAN	ASIAN	HAWAII_PAC	OTHER
3.00 - 4.00	3493	3426	22	6	5	1	33
2.00 - 3.00	1737	1711	9	2	2	0	13
1.00 - 2.00	2186	2072	77	4	1	0	32
0.50 - 1.00	1333	1240	65	3	0	0	25
0.25 - 0.50	59	58	0	0	0	0	0
0.00 - 0.25	20	19	0	0	0	0	0
TOTALS	8828	8526	173	15	8	1	103

**Windham Alloys****Ground Water Systems**

ID_	PWS_ID	SYS_TYPE	NAME	ADDRESS	CITY	STATE	DISTANCE	POPULATION
1	6704812	Community	WINDHAM,VILLAGE OF	9621 EAST CENTER STREET	WINDHAM	OH	1.1628	3150
2	6700612	Community	PM ESTATES	30700 BAINBRIDGE RD.,UNIT L	OLON	OH	2.0364	600
3	6705112	Community	HOMESTEAD MANOR MOBILE H	P.O. BOX 313	GARRETTSVILLE	OH	2.8727	92
4	7841212	Non-Community/Transient	RIDGE RANCH CAMP-CENTER	5219 SR 303	NEWTON FALLS	OH	3.4137	186
5	7841312	Non-Community/Transient	RIDGE RANCH CAMP-CLUBHSE	5219 SR 303	NEWTON FALLS	OH	3.4472	186
6	7841412	Non-Community/Transient	RIDGE RANCH CAMP-A LINE	5219 SR 303	NEWTON FALLS	OH	3.5475	186

**Windham Alloys**

**Surface Water Systems**

<b>ID</b>	<b>PWS_ID</b>	<b>SYS_SOURCE</b>	<b>SYS_TYPE</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>	<b>STATE</b>	<b>DISTANCE</b>	<b>POPULATION</b>
1	7802311	Surface Water	Community	NEWTON FALLS, CITY OF	19 N.CANAL STREET	NEWTON FALLS	OH	6.0620	6150
2	6766711	Surface Water	Non-Community/Transient	ODNR-WEST BRANCH-TOWER	5708 ESWORTHY ROAD	RAVENNA	OH	6.9824	1400
3	7802812	Purchased Surface Water	Community	SOUTHINGTON M.H. PARK	657 LONGMERE DR.	KENT	OH	7.0219	240
4	7806112	Purchased Surface Water	Community	TRUMBULL CO.-WARREN TWP	7500 ANDERSON AVENUE NE	WARREN	OH	7.9724	468
5	7803911	Surface Water	Community	WEST FARMINGTON, VILLAGE	P.O. BOX 215	WEST FARMINGTON	OH	11.4874	1100
6	6703211	Surface Water	Community	RAVENNA, CITY OF	5383 LAKEWOOD ROAD	RAVENNA	OH	13.6479	15000
7	7804403	Purchased Surface Water	Community	LORDSTOWN, VILLAGE OF	1491 SALT SPRINGS ROAD, SW	WARREN	OH	13.7612	3780
8	7700011	Surface Water	Community	AKRON, CITY OF	146 S.HIGH STREET P.O.BOX 3665	AKRON	OH	14.6004	308720



**Windham Alloys**

**Natural Heritage Data**

<b>ID_</b>	<b>STATUS</b>	<b>DISTANCE</b>	<b>SCI_NAME</b>	<b>COM_NAME</b>
1	State Endangered	0.7178	SPHYRAPICUS VARIUS	YELLOW-BELLIED SAPSUCKER
2	State Endangered	0.7350	ICHTHYOMYZON GREELEYI	MOUNTAIN BROOK LAMPREY
3	State Threatened	0.8956	PLAGIOTHECIUM LATEBRICOLA	LURKING LESKEA
4	State Endangered	1.4437	ICHTHYOMYZON GREELEYI	MOUNTAIN BROOK LAMPREY
5	State Threatened	2.7249	EQUISETUM SYLVATICUM	WOODLAND HORSETAIL
6	State Endangered	2.8940	POTENTILLA ARGUTA	TALL CINQUEFOIL
7	State Threatened	3.5598	LECHEA PULCHELLA	LEGGETT'S PINWEED
8	State Endangered	3.6485	LYCOPODIUM LAGOPUS	ONE-CONED CLUB-MOSS
9	State Endangered	3.6485	LYCOPODIELLA MARGUERITAE	NORTHERN PROSTRATE CLUB-MOSS
10	State Threatened	3.7679	EPILOBIUM STRICTUM	SIMPLE WILLOW-HERB
11	State Endangered	3.8202	CATOCALA GRACILIS	GRACEFUL UNDERWING
12	State Threatened	3.8839	CLEMMYS GUTTATA	SPOTTED TURTLE
13	State Endangered	3.8839	CATOCALA GRACILIS	GRACEFUL UNDERWING
14	State Threatened	4.2936	PANICUM PHILADELPHICUM	PHILADELPHIA PANIC GRASS
15	Federally Threatened	4.4009	ACONITUM NOVEBORACENSE	NORTHERN MONKSHOOD
16	State Threatened	4.4308	LECHEA PULCHELLA	LEGGETT'S PINWEED
17	State Threatened	4.7401	CALLITRICHE VERNA	VERNAL WATER-STARWORT
18	State Threatened	4.8642	PLAGIOTHECIUM LATEBRICOLA	LURKING LESKEA
19	State Threatened	4.9879	CLEMMYS GUTTATA	SPOTTED TURTLE
20	State Endangered	5.2551	CIRCUS CYANEUS	NORTHERN HARRIER
21	State Endangered	6.0790	ICHTHYOMYZON GREELEYI	MOUNTAIN BROOK LAMPREY
22	State Threatened	6.3155	CLEMMYS GUTTATA	SPOTTED TURTLE
23	State Threatened	6.3746	MELANTHIUM VIRGINICUM	BUNCHFLOWER
24	State Threatened	6.4370	ADLUMIA FUNGOSA	MOUNTAIN-FRIDGE
25	State Endangered	6.5060	CAREX ARCTATA	DROOPING WOOD SEDGE
26	State Endangered	6.5160	PLATANThERA PSYCODES	SMALL PURPLE FRINGED ORCHID
27	State Threatened	6.5160	MELANTHIUM VIRGINICUM	BUNCHFLOWER
28	State Threatened	6.5745	EPILOBIUM STRICTUM	SIMPLE WILLOW-HERB
29	State Endangered	6.5745	PLATANThERA PSYCODES	SMALL PURPLE FRINGED ORCHID
30	State Threatened	6.9135	ADLUMIA FUNGOSA	MOUNTAIN-FRIDGE
31	State Threatened	7.2434	CAREX BRUNNESCENS	BROWNISH SEDGE
32	State Threatened	7.8724	POA PALUDIGENA	MARSH SPEAR GRASS
33	State Threatened	7.9896	CALOPOGON TUBEROSUS	GRASS-PINK
34	State Threatened	7.9896	PANICUM BOREALE	NORTHERN PANIC GRASS
35	State Threatened	7.9896	MELANTHIUM VIRGINICUM	BUNCHFLOWER
36	State Threatened	7.9896	POGONIA OPHIOGLOSSOIDES	ROSE POGONIA
37	State Threatened	7.9896	VACCINIUM OXYCOCCOS	SMALL CRANBERRY
38	State Endangered	7.9896	ARETHUSA BULBOSA	DRAGON'S-MOUTH
39	State Threatened	7.9896	GALIUM LABRADORICUM	BOG BEDSTRAW
40	State Threatened	7.9896	SALIX CANDIDA	HOARY WILLOW
41	State Threatened	8.0655	MELANTHIUM VIRGINICUM	BUNCHFLOWER
42	State Threatened	8.2061	LILIUM PHILADELPHICUM	WOOD LILY
43	State Endangered	8.2061	CYPRIPEDIUM CANDIDUM	WHITE LADY'S-SLIPPER
44	State Threatened	8.2061	MELANTHIUM VIRGINICUM	BUNCHFLOWER
45	State Threatened	8.2061	CALOPOGON TUBEROSUS	GRASS-PINK
46	State Threatened	8.2061	SALIX CANDIDA	HOARY WILLOW
47	State Threatened	8.2061	VACCINIUM OXYCOCCOS	SMALL CRANBERRY

**Windham Alloys**

**Natural Heritage Data**

<b>ID_</b>	<b>STATUS</b>	<b>DISTANCE</b>	<b>SCI_NAME</b>	<b>COM_NAME</b>
48	State Endangered	8.5494	ICHTHYOMYZON GREELEYI	MOUNTAIN BROOK LAMPREY
49	State Endangered	8.8731	LIGUMIA NASUTA	EASTERN PONDMUSSEL
50	State Threatened	8.9897	BARTRAMIA LONGICAUDA	UPLAND SANDPIPER
51	State Threatened	9.0599	MELAMPYRUM LINEARE	COW-WHEAT
52	State Threatened	9.4706	DESCHAMPSIA FLEXUOSA	CRINKLED HAIR GRASS
53	State Endangered	9.6075	SCHIZACHNE PURPURASCENS	FALSE MELIC
54	State Threatened	9.9925	CALLA PALUSTRIS	WILD CALLA
55	State Endangered	10.3407	ICHTHYOMYZON FOSSOR	NORTHERN BROOK LAMPREY
56	State Threatened	10.4908	CLEMMYS GUTTATA	SPOTTED TURTLE
57	State Threatened	10.4975	BARTRAMIA LONGICAUDA	UPLAND SANDPIPER
58	State Threatened	10.7000	BARTRAMIA LONGICAUDA	UPLAND SANDPIPER
59	State Threatened	10.8258	BARTRAMIA LONGICAUDA	UPLAND SANDPIPER
60	State Endangered	10.8272	LIGUMIA NASUTA	EASTERN PONDMUSSEL
61	State Threatened	10.9743	GYMNOCARPIUM DRYOPTERIS	COMMON OAK FERN
62	State Endangered	11.0051	POLYGONUM CILINODE	MOUNTAIN BINDWEED
63	State Endangered	11.0051	VIBURNUM OPULUS VAR AMERICANUM	HIGHBUSH-CRANBERRY
64	State Endangered	11.1102	ICHTHYOMYZON FOSSOR	NORTHERN BROOK LAMPREY
65	State Threatened	11.1665	LATHYRUS OCHROLEUCUS	YELLOW VETCHLING
66	State Threatened	11.3612	CLEMMYS GUTTATA	SPOTTED TURTLE
67	State Endangered	11.5134	POTAMOGETON PRAELONGUS	WHITE-STEMMED PONDWEED
68	State Endangered	11.5134	ELEOCHARIS ROBBINSII	ROBBINS' SPIKE-RUSH
69	State Endangered	11.5454	POLYGONUM CILINODE	MOUNTAIN BINDWEED
70	State Threatened	11.6154	ELEOCHARIS OLIVACEA	OLIVACEOUS SPIKE-RUSH
71	State Endangered	11.6154	POTAMOGETON PRAELONGUS	WHITE-STEMMED PONDWEED
72	State Endangered	11.7265	SALIX PEDICELLARIS	BOG WILLOW
73	State Threatened	11.7357	CAREX OLIGOSPERMA	FEW-SEEDED SEDGE
74	State Threatened	11.7412	ELEOCHARIS OLIVACEA	OLIVACEOUS SPIKE-RUSH
75	State Threatened	11.7412	MYRIOPHYLLUM SIBIRICUM	AMERICAN WATER-MILFOIL
76	State Threatened	12.1439	VACCINIUM MYRTILLOIDES	VELVET-LEAVED BLUEBERRY
77	State Endangered	12.3142	CAREX CEPHALOIDEA	THIN-LEAVED SEDGE
78	State Threatened	12.3242	TYTO ALBA	BARN OWL
79	State Threatened	12.6014	POLYGONUM ROBUSTIUS	COARSE SMARTWEED
80	State Endangered	12.7125	POLYGONUM SETACEUM VAR INTERJECTUM	BRISTLY SMARTWEED
81	State Endangered	12.7174	SPARGANIUM CHLOROCARPUM	SMALL BUR-REED
82	State Endangered	12.7308	VIBURNUM OPULUS VAR AMERICANUM	HIGHBUSH-CRANBERRY
83	State Threatened	12.7373	CLEMMYS GUTTATA	SPOTTED TURTLE
84	State Endangered	12.7917	POLYGONUM SETACEUM VAR INTERJECTUM	BRISTLY SMARTWEED
85	State Threatened	12.8487	CAREX ALBOLUTESCENS	PALE STRAW SEDGE
86	State Threatened	12.8675	VACCINIUM MYRTILLOIDES	VELVET-LEAVED BLUEBERRY
87	State Threatened	12.9290	LECHEA PULCHELLA	LEGGETT'S PINWEED
88	State Threatened	12.9776	ERIMYZON SUCETTA	LAKE CHUBSUCKER
89	State Threatened	12.9829	CAREX OLIGOSPERMA	FEW-SEEDED SEDGE
90	State Threatened	13.0037	ERIMYZON SUCETTA	LAKE CHUBSUCKER
91	State Endangered	13.0092	SPARGANIUM CHLOROCARPUM	SMALL BUR-REED
92	State Threatened	13.0524	CALLA PALUSTRIS	WILD CALLA
93	State Endangered	13.0524	CAREX LIMOSA	MUD SEDGE
94	State Threatened	13.0524	VACCINIUM OXYCOCCOS	SMALL CRANBERRY

**Windham Alloys**

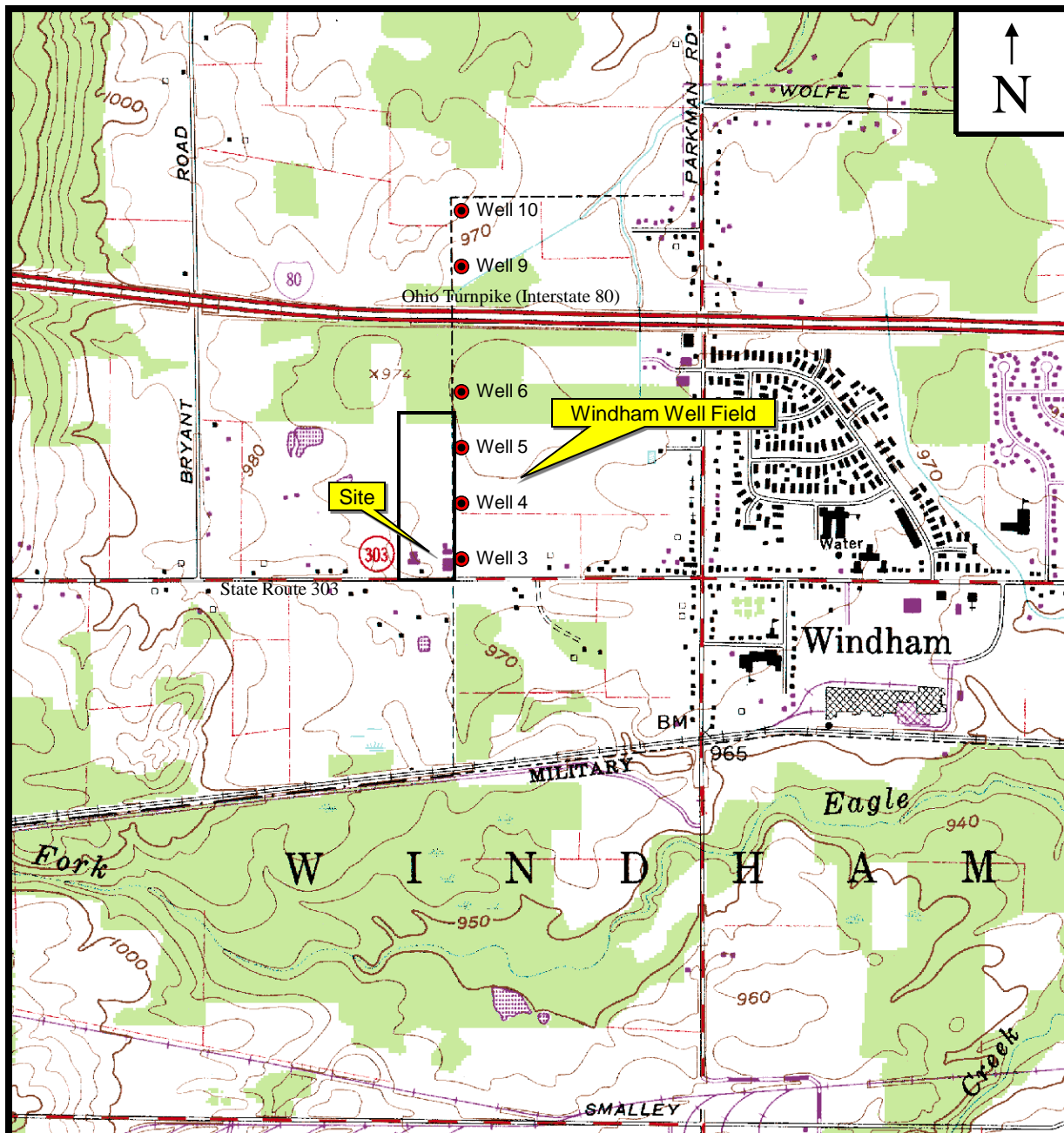
**Natural Heritage Data**

<b>ID_</b>	<b>STATUS</b>	<b>DISTANCE</b>	<b>SCI_NAME</b>	<b>COM_NAME</b>
95	State Threatened	13.1523	CALLITRICHE VERNA	VERNAL WATER-STARWORT
96	State Threatened	13.1647	CAREX OLIGOSPERMA	FEW-SEEDED SEDGE
97	State Threatened	13.1647	CALLA PALUSTRIS	WILD CALLA
98	State Endangered	13.2205	CATOCALA GRACILIS	GRACEFUL UNDERWING
99	State Endangered	13.2205	UTRICULARIA GEMINISCAPA	TWO-SCAPED BLADDERWORT
100	State Endangered	13.2205	CORDULIA SHURTLEFFII	AMERICAN EMERALD
101	State Endangered	13.2205	CAREX ECHINATA	LITTLE PRICKLY SEDGE
102	State Endangered	13.2205	EPIGLAEA APIATA	POINTED SALLOW
103	State Endangered	13.2205	LEUCORRHINIA FRIGIDA	FROSTED WHITEFACE
104	State Threatened	13.2240	DESCHAMPSIA FLEXUOSA	CRINKLED HAIR GRASS
105	State Threatened	13.2474	APOCYNUM SIBIRICUM	CLASPING-LEAVED DOGBANE
106	State Threatened	13.2544	CALLA PALUSTRIS	WILD CALLA
107	State Endangered	13.3284	CIRCUS CYANEUS	NORTHERN HARRIER
108	State Endangered	13.3296	GLYCERIA ACUTIFLORA	SHARP-GLUMED MANNA GRASS
109	State Threatened	13.3296	HYPERICUM BOREALE	NORTHERN ST. JOHN'S-WORT
110	State Threatened	13.3411	DESCHAMPSIA FLEXUOSA	CRINKLED HAIR GRASS
111	State Endangered	13.3505	VIOLA PRIMULIFOLIA	PRIMROSE-LEAVED VIOLET
112	State Threatened	13.3564	CALLA PALUSTRIS	WILD CALLA
113	State Threatened	13.6313	DESCHAMPSIA FLEXUOSA	CRINKLED HAIR GRASS
114	State Threatened	13.6313	MYRIOPHYLLUM SIBIRICUM	AMERICAN WATER-MILFOIL
115	State Threatened	13.7820	DESCHAMPSIA FLEXUOSA	CRINKLED HAIR GRASS
116	State Threatened	13.8330	ERIMYZON SUCETTA	LAKE CHUBSUCKER
117	State Endangered	13.8452	POTAMOGETON ROBBINSII	ROBBINS' PONDWEED
118	State Threatened	13.8524	CALLA PALUSTRIS	WILD CALLA
119	State Endangered	13.8904	CORALLORHIZA TRIFIDA	EARLY CORAL-ROOT
120	State Threatened	13.8904	MENYANTHES TRIFOLIATA	BUCKBEAN
121	State Threatened	13.8904	DESCHAMPSIA FLEXUOSA	CRINKLED HAIR GRASS
122	State Threatened	13.8904	CAREX OLIGOSPERMA	FEW-SEEDED SEDGE
123	State Threatened	13.8904	CALLA PALUSTRIS	WILD CALLA
124	State Threatened	13.9251	EQUISETUM SYLVATICUM	WOODLAND HORSETAIL
125	State Threatened	13.9251	CALLA PALUSTRIS	WILD CALLA
126	State Threatened	13.9354	WOLFFIELLA GLADIATA	WOLFFIELLA
127	Federally Threatened	13.9673	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE
128	State Endangered	13.9859	POTAMOGETON ROBBINSII	ROBBINS' PONDWEED
129	State Threatened	14.0793	DESCHAMPSIA FLEXUOSA	CRINKLED HAIR GRASS
130	State Endangered	14.0836	LIGUMIA NASUTA	EASTERN POND MUSSEL
131	State Threatened	14.1290	WOLFFIELLA GLADIATA	WOLFFIELLA
132	State Endangered	14.1889	SISTRURUS CATENATUS	EASTERN MASSASAUGA
133	State Threatened	14.2012	CALLA PALUSTRIS	WILD CALLA
134	State Threatened	14.2642	WOLFFIELLA GLADIATA	WOLFFIELLA
135	State Threatened	14.3623	POA PALUDIGENA	MARSH SPEAR GRASS
136	State Threatened	14.4075	POLYGONUM ROBUSTIUS	COARSE SMARTWEED
137	State Threatened	14.4075	POA PALUDIGENA	MARSH SPEAR GRASS
138	State Threatened	14.4342	DESCHAMPSIA FLEXUOSA	CRINKLED HAIR GRASS
139	State Threatened	14.4411	WOLFFIELLA GLADIATA	WOLFFIELLA
140	Federally Threatened	14.4703	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE
141	State Endangered	14.4796	HYDROCOTYLE UMBELLATA	NAVELWORT

**Windham Alloys**

**Natural Heritage Data**

<b>ID_</b>	<b>STATUS</b>	<b>DISTANCE</b>	<b>SCI_NAME</b>	<b>COM_NAME</b>
142	State Endangered	14.4796	CAREX DISPERMA	TWO-SEEDED SEDGE
143	State Threatened	14.5141	WOLFFIELLA GLADIATA	WOLFFIELLA
144	State Endangered	14.5164	NAJAS GRACILLIMA	THREAD-LIKE NAIAD
145	State Threatened	14.5257	CORNUS CANADENSIS	BUNCHBERRY
146	State Endangered	14.5598	POTAMOGETON FRIESII	FRIES' PONDWEED
147	State Threatened	14.7105	CAREX PROJECTA	NECKLACE SEDGE
148	State Threatened	14.7105	CORNUS CANADENSIS	BUNCHBERRY
149	State Threatened	14.7105	POA PALUDIGENA	MARSH SPEAR GRASS
150	State Endangered	14.7105	VIBURNUM OPULUS VAR AMERICANUM	HIGHBUSH-CRANBERRY
151	State Endangered	14.7786	HYDROCOTYLE UMBELLATA	NAVELWORT
152	State Endangered	14.8069	HYDROCOTYLE UMBELLATA	NAVELWORT
153	State Endangered	14.8245	BOTAURUS LENTIGINOSUS	AMERICAN BITTERN
154	State Endangered	14.8655	HYDROCOTYLE UMBELLATA	NAVELWORT
155	State Endangered	14.8955	TOMENTYPNUM NITENS	FUZZY HYPNUM MOSS
156	State Threatened	14.9049	POA PALUDIGENA	MARSH SPEAR GRASS
157	State Threatened	14.9049	CORNUS CANADENSIS	BUNCHBERRY
158	State Endangered	14.9150	CORALLORHIZA TRIFIDA	EARLY CORAL-ROOT
159	State Endangered	14.9634	HYDROCOTYLE UMBELLATA	NAVELWORT
160	State Endangered	14.9801	ICHTHYOMYZON FOSSOR	NORTHERN BROOK LAMPREY



### **LEGEND**

- Approximate boundary of site
- Approximate public supply well location

WINDHAM ALLOYS SITE  
VILLAGE OF WINDHAM, PORTAGE COUNTY, OHIO

### **FIGURE 1: SITE LOCATION MAP**

Ohio Environmental Protection Agency

SCALE : NOT TO SCALE





## Legend

- Windham Alloys site boundary
- Approximate Building Location
- Approximate Concrete/Ashalt Area
- Approximate Removal Area

WINDHAM ALLOYS  
WINDHAM, PORTAGE COUNTY, OHIO  
SITE FEATURES MAP

**FIGURE 2: SITE FEATURES MAP**

Ohio Environmental Protection Agency

0 50 100 200 300 400  
Feet





## Legend

- Windham Alloys site boundary
- Approximate Building Location
- Approximate Well Locations
- Approximate Removal Area

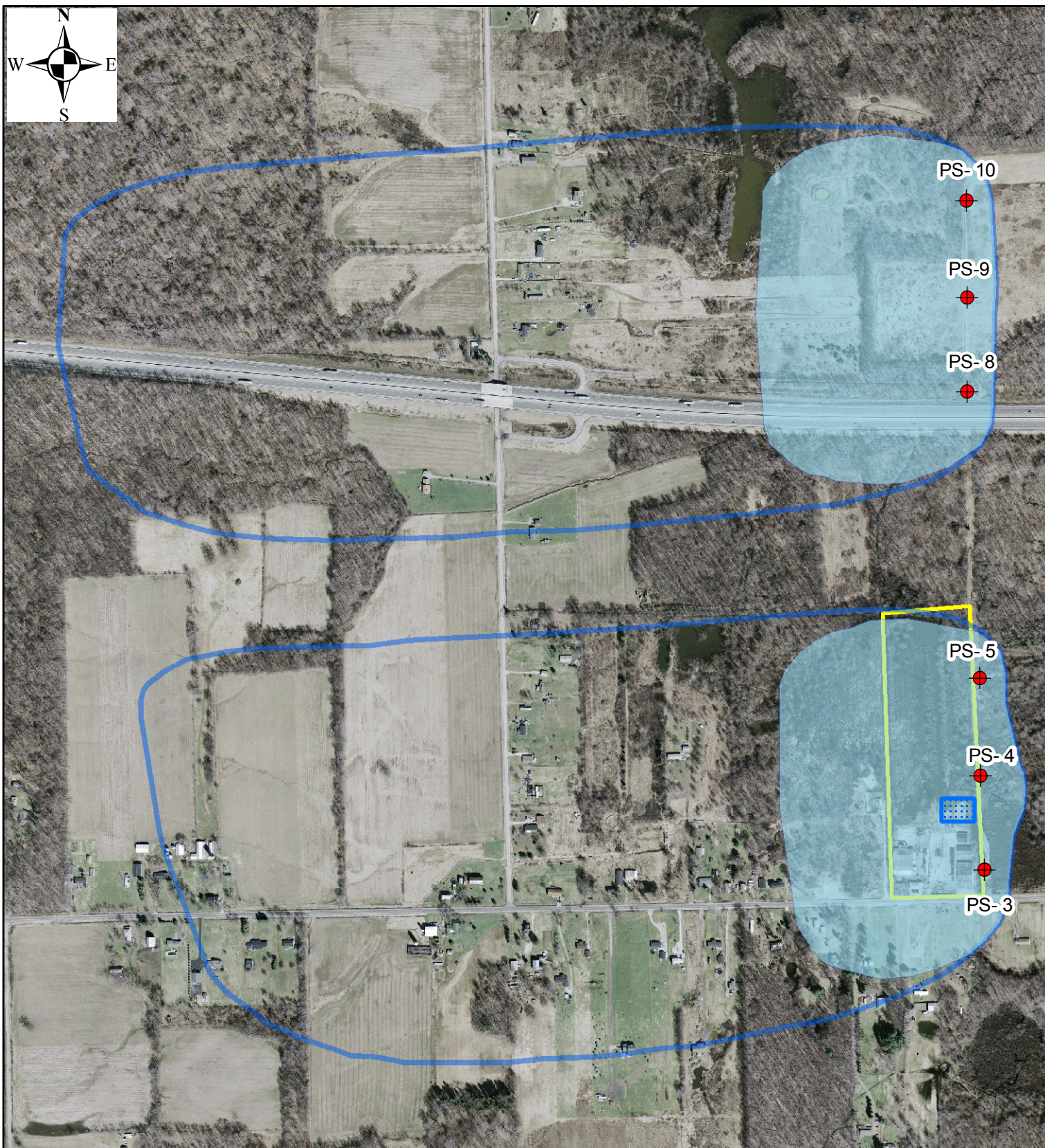
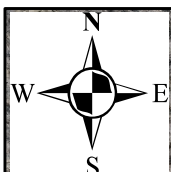
WINDHAM ALLOYS  
WINDHAM, PORTAGE COUNTY, OHIO

## FIGURE 3: WELL LOCATION MAP






Ohio Environmental Protection Agency

0 25 50 100 150 200  
Feet





## Legend

-  PWS Wells - Active
-  Inner Management Zones
-  Source Water Protection Areas
-  Windham Alloys site boundary
-  Approximate Removal Area

WINDHAM ALLOYS  
WINDHAM, PORTAGE COUNTY, OHIO

## FIGURE 4: Drinking Water Source Protection Area

Ohio Environmental Protection Agency

0 187.5375 750 1,125 1,500 Feet